

California

MEDICINE

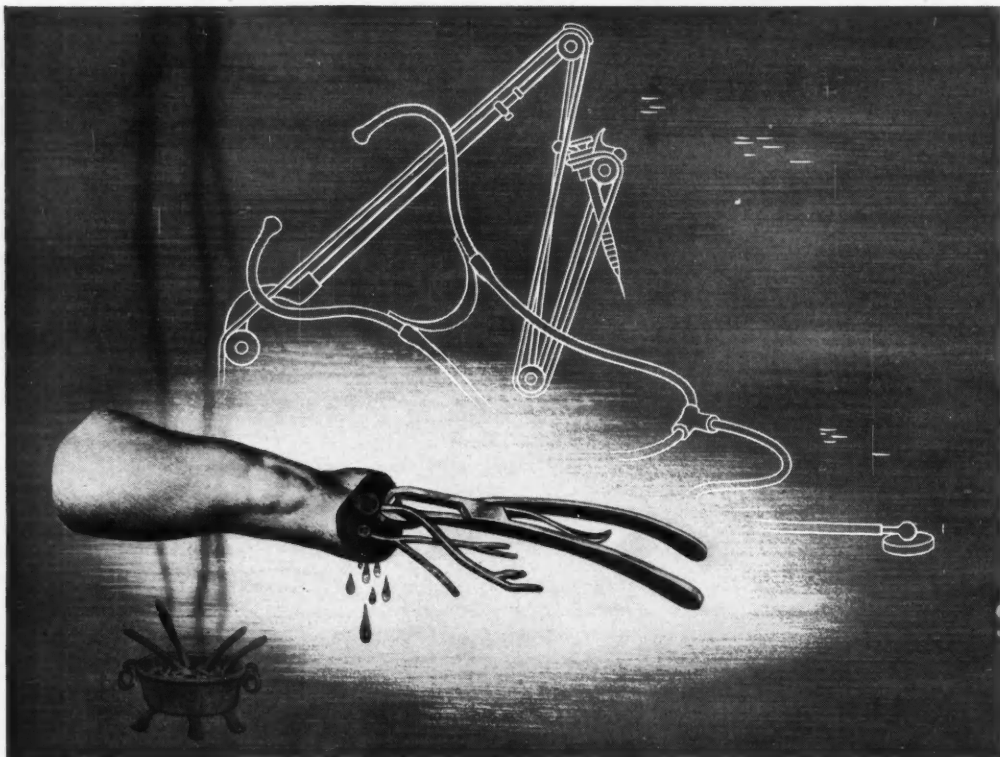
FEBRUARY, 1948

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C.M.A. 1948 Annual Meeting, April 11-14, San Francisco

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In mitigating bloodflow, which often meant a surgeon's handicap and a patient's death, Paré made possible more major surgery—and, with his "Bec de Corbin," illustrated above, spurred it on toward the hemostat of Dr. Spencer Wells, who died only two years before our company was founded.

(Also, if less directly, toward anesthesia and asepsis.)

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NO. 2

Low Back Pain from the Orthopedic Standpoint

HUGH T. JONES, M.D., *Los Angeles*

LOW back pain is a controversial subject, in which views differ and opinions conflict.

Patients often yearn for magic in the relief of their distress. At least it is natural that they want help, want it quickly and want the physician to provide a cure without sustained effort on the part of the patient. When relief appears, the patient and too often the physician credit the recovery to a certain therapy really not responsible for the happy turn of events, though often this is not the final episode of trouble.

It is not realized that low back pain is frequently episodal in nature with periods of distress and periods of remission. It has been said that a man in his lifetime has about thirty serious illnesses, and it stands to reason that he makes some sort of recovery 29 times. Whoever the physician is at the time of recovery and whatever the method used, no matter how bizarre, that physician, or that method will likely be credited with a cure.

HISTORICAL

Low back pain has worried mankind since records have been kept and without doubt before records were kept, back to the time when our forefathers went on all fours or hung from trees. The aphorism of Hippocrates, No. LX, states: "Those that have their hip bone come out upon a long continued pain of Sciatica, shall have their Thigh wasted, and halt, unless they be burnt for it." The above was quoted by C. J. Sprengell, M.D.,* of London, in 1708, and he described how he carried out the ancient advice:

* Cotugno, in 1764, has been credited with origination of the term sciatica.¹⁰

Read as a part of the panel discussion of back pain before the sections on General Medicine, General Practice, Radiology, and Neuropsychiatry, and General Surgery at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

"By burning three holes about the Joint of the Os Coxis with the Moxa,[†] I have myself (according to the advice of this aphorism) lately cured a young Gentleman, whose joint was so far relaxed, that one might very well lay ones thumb betwixt the Joints, he being very lean withal, and therefore used the Milk Diet mixed with the Testaceous Powders, to the great advantage and Remedy."¹⁵ Thus the hip joint was considered the source of the sciatica. Later it was the sacro-iliac joint, and now it is the lumbosacral joint. Theories were necessary when facts were wanting. Facts are still wanting and theories are still necessary.

With the Twentieth Century came the careful work of Goldthwaite, of Boston.⁵ It is startling to see how exactly he portrayed the posterior protrusion of the intervertebral disc in his illustration (Figure 1). He was very much aware of difficulty from the lumbosacral joints, but blamed a considerable portion of back disabilities upon the sacro-iliac joints and their ligaments, describing strains and subluxations of the joints.

The statistics of the 'teens and twenties were particularly limited by the factors that limit us today: (1) A lack of complete knowledge of basic facts, (2) Too short a follow-up in patients subject to disabilities of an episodal, recurrent nature, (3) Lack of a control series, (4) Our need to use theory when all facts are not at hand. C. J. Sprengell, M.D., in 1708, in his series of one case gave the impression that without his services the state of the patient would have been sad indeed. Likely, he did not consider what might have happened with rest and the ministrations of Father Time and Mother Nature. So it is with later statistics. In 1917, Baer of Johns Hop-

[†] Moxa, a . . . substance prepared from the leaves of Chinese species of woodworm used as a cautery by igniting on the skin. The New Century Dictionary, Page 1103. D. Appleton.

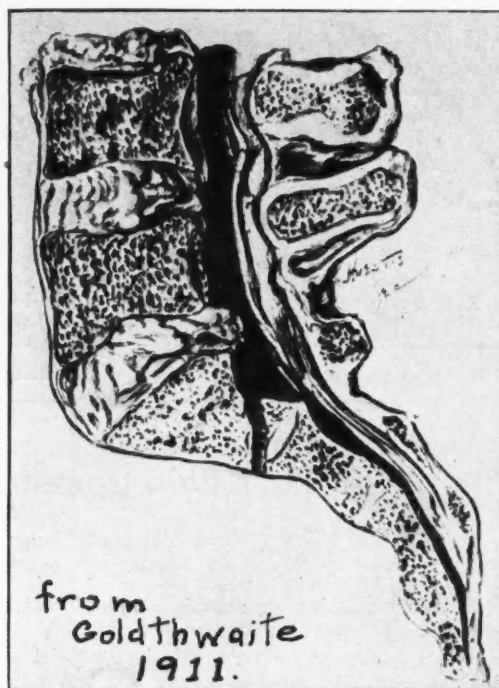
kins,² wrote of manipulation under general anesthesia by forced straight leg raising in cases of low back pain and referred pain in which the patients had not been relieved by conservative measures. Of 100 patients manipulated, he reported relief in almost every instance and recurrences in only three. The time of follow-up was not given. His photographic illustration showed a patient in the typical attitude of sciatic scoliosis.

The focal infections era followed. Albee of New York, in 1927, startled those of us who were on the track of foci in teeth, tonsils, etc., by stating that at least 90 per cent of the cases of "low back pain," "lumbago," "sacro-iliac strain," and sciatica that he saw were instances of myofascitis. It was his belief that the vast proportion of these patients had their foci in the colon, and in reporting the results in 46 cases treated, most of which were instances of low back pain, he claimed 95 per cent of excellent and good results.¹

In 1926, Smith-Petersen, of Boston, after a very careful study reported end results in 26 cases of arthrodesis of the sacro-iliac joint for traumatic and nontraumatic arthritis.¹⁴ It may be argued that a different type of case was under study, but the sacro-iliac joint was the site of the distress, with radiating pain extending to the posterior thigh in 89 per cent and to the posterior leg in 81 per cent of the cases. There was a body list in 72 per cent and spasm of the erector spinae muscles in 74 per cent of the cases. He found complete recovery in 84.6 per cent and partial recovery in 7.7 per cent.

It was confusing to hear reports of similar disabilities relieved in such high percentages of cases in such a variety of ways. Many physicians before and since the time of Baer have witnessed dramatic relief following manipulation. Many will agree that the removal of foci of infection has been followed by dramatic relief for back pain, and in certain instances it is difficult to credit other agencies. The bowel may even be a source of focal infection in certain instances, but facts seem wanting to prove that focal infection is the major cause of a large majority of the cases of low back pain. The high percentages of relief in Smith-Petersen's carefully followed series of sacro-iliac fusions can likely be explained by the period of postoperative bed rest, and because in the course of the operation the structures from the posterior ilium were stripped away. Roberts and Heyman later reported relief in a series of cases in which only the stripping procedure was done and not the sacro-iliac fusion.¹²

The 1930's were especially productive and definite advances were made. Schmorl, just before and after 1930, gave his classic descriptions of the gross and microscopic changes in the intervertebral discs. After careful study of a tremendous amount of autopsy material, he demonstrated that the discs are avascular except in the embryo and during early postnatal life. He concluded that of all the external agencies affecting the discs, trauma was the most important. In trauma he included the minor jolts of life as well as the severe injuries.¹³ Boyd, the patholo-



from
Goldthwaite
1911.

Figure 1

gist, following Schmorl's work, reported that in autopsy material the finding of well preserved discs in middle life was the exception and not the rule. He claimed that of all the tissues of the body, the disc has shown the greatest tendency to degenerate, not excepting the intima of larger arteries.³ Such facts have clinical applications. We have ample evidence of what trauma does to an avascular semilunar fibrocartilage, and it is probable that injury to the intervertebral fibrocartilage is also followed by imperfect healing. Of extreme importance is the early degenerative processes taking place in these discs. The work of Mixter and Barr brought to light and general knowledge in the United States the clinical importance of posterior protrusion of the intervertebral disc and their work is well known, but the underlying facts and theories are not so generally understood.¹¹

REARRANGEMENT OF IDEAS

New facts made known in the past decade have forced a rearrangement of ideas, but still it cannot be assumed that the problem of low back pain has been solved. Certain points seem settled while others are still not proven. The point seems clear that it is no longer necessary to call upon the theory of sacro-iliac strain and subluxation to explain the complaints of a large proportion of patients presenting pain and tenderness in the region of the sacro-iliac joints with or without sciatica. These signs and symptoms have been found repeatedly by many observers

in patients presenting proven pathologic changes in the lower spinal discs and repeatedly relieved by surgical attack on the discs. I am with those who doubt the existence of extensive mechanical trouble in the sacro-iliac joints aside from the relaxed joints of pregnancy and actual disruption from severe trauma such as occurs in certain pelvic fractures. This does not prove that other lesions may not produce the same symptoms. Here a difference of opinion has arisen. J. Albert Key has held that the intervertebral disc lesions comprise the most common cause of low back complaints, with and without sciatica.⁸ Watson-Jones¹⁷ on the other hand has held that the syndrome of sciatic scoliosis with sciatica is produced by two other important types of lesions besides the protruded intervertebral discs: (1) Myofascial and ligamentous injuries, (2) articular injuries to the sacro-iliac, lumbosacral or interarticular joints of the spine. He has recommended the novocain test of Steindler and Luck¹⁶ to separate the cases of myofascial injury from the other types.

There is proof that tears do exist in the muscular and ligamentous structures of the back. For instance, when a series of spinal transverse processes are torn off there must be muscular and fascial tears. Interarticular joints are injured, for facets are fractured and osteoarthritis of these joints is best explained by previous trauma and wear. I can see how facet changes may cause local distress in the back, and I know that overriding of the facets will diminish the size of the intervertebral foramina, but I think that disc protrusion is a much more reasonable cause of radicular pain than facet pressure. Here again facts are not at hand for definite proof. I am skeptical about myofascial and sacro-iliac causes of sciatic scoliosis, because I have so repeatedly seen disease of the disc with nerve root pressure clearly causing the sciatic scoliosis syndrome while I have not had proof to relate the other causes claimed for the syndrome. When thoughtful men seem convinced, I must hold my decision and await evidence.

SYNDROME OF THE LOW SPINAL DISC

In the case of back pain, when investigation reveals a very definite infection like tuberculosis, invasion by neoplasm or a fractured vertebra from direct trauma, a plan of treatment can be laid down. It is the indeterminate low back pain that has long caused the poor human to scratch his head and wonder. What is the syndrome of the injured disc and what part can an appreciation of its features play in understanding the riddle? We today must also use both fact and theory. In the first place it is not generally realized how early in life injury and degenerative changes in the discs may start. I have repeatedly been surprised in obtaining histories from patients with definite disease in these discs when no definite injury could be uncovered other than a twist or a stoop, until the story has been related about a fall from a porch, roof, or hay-mow in childhood or during the early 'teens.

One female patient, 34 years of age, with an unusually strong type of sthenic build was found at

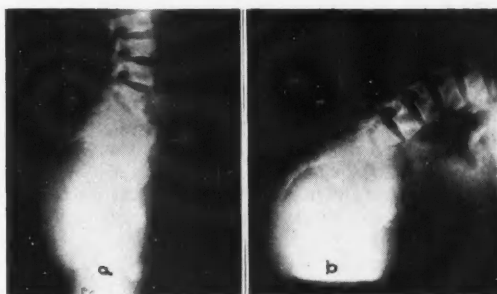


Figure 2

operation to have a very large disc-protrusion causing pressure on the first sacral root. She told of an awkward twist in recent years which initiated back pain, and the episodes were repeated with severe radiculitis. No reasonable explanation of so gross an injury was uncovered until she related that in childhood she had lived on a farm and the family and she were very proud of her strength. At eight years of age she could and did carry many sacks of animal feed weighing 60 pounds. This may be far fetched for proof, but if these stories are obtained frequently enough by careful questions, they may mean something.

Much thought and literature have been devoted to the possible relationship of faulty posture to the syndrome of the disabled low spinal discs. It is certainly not a prerequisite for this trouble, because protruded discs often are found in patients with the athletic and sthenic habitus and good posture. These people are strong, crave activity and subject their bodies to terrific trauma. Moreover they are frequently injured by a heavy fall on the buttocks when the lumbar spine is flattened and the upper surface of the sacrum is horizontal rather than tilted as in the inclined pelvis of faulty posture. It is claimed that the shearing stress of the pelvis tilted forward in faulty posture, combined with the hollow lumbar spine, can wear away the intervertebral disc eventually. In these patients the body weight is carried on the top of a sacrum that slumps forward. It is within reason that constant pressure so exerted on the posterior part of the disc after repeated mild jolts as suggested by Schmorl,¹³ may result in degenerative changes and possibly be a factor in producing disintegrations that later allow protrusion. A forward bend to lift a heavy weight is often blamed by the patient for the onset of acute symptoms. (Figure 2, a and b.) One hundred pounds so lifted can be multiplied possibly to one thousand pounds of pressure in the lower back by the principle of the cartilever. The longitudinal ligament posterolaterally is normally weaker than anteriorly or laterally, and if the posterior part of the disc has deteriorated and this deterioration has been hastened by the long continued trauma of faulty posture, I can see an etiological relationship in faulty posture. I can see that posture may have another relationship. Many of

these patients with altered lower spine discs are more comfortable when the lumbar spine is flat, and the patient with faulty posture presents a hollow back unless something has happened to change his attitude. However, contracted soft tissues of long standing may interfere with the attainment of anything but a sway back in these patients. I think that pronated flat feet can be a factor only in a limited way in connection with posture in general. The amount of blame that we can, at present, assign to faulty posture in the production of protruded discs is still not proved by definite facts.

Study of the typical progression of symptoms in this syndrome of the low back discs is worth attention. Early symptoms are located in the lower back, but after a recurring attack or two, the pain is referred also to the back of the hip or the mid gluteal region. Keegan has explained this by pointing out that in the development of root pain in this condition, the first sensory contact of the posterior primary division of the root is against the ligamentum flavum, and as the skin of the buttocks is supplied by this portion of the nerve root the buttock pain has a reasonable explanation.⁷

Later in the history of these patients with one

more attack, possible with complete or incomplete remissions, the pain is not only felt in the buttocks but down the leg. It may be one leg and then the other, or rarely be down both legs. The pain does not follow the distribution of the sciatic nerve but picks out the area supplied by a spinal nerve root. The nerve roots overlap so that at least two adjacent roots must be affected to produce actual anesthesia, but the patient often complains of parasthesias in the area supplied by one irritated root. A still later development in this syndrome of attacks and remissions is that the distress may be constant and the remissions incomplete. This is repeatedly found at surgery to be explained by a complete protrusion of the disc material through the posterior longitudinal ligament into the spinal canal in an irreversible way. These people report that manipulation has ceased to influence the attacks of distress. At operation one can see that an attempt to accomplish anything by manipulation would be futile.

CASE REPORT

It is not often that one is able to follow such a case for 25 years. In this instance my wife has been my patient. To recite the symptoms would merely be a repetition of the

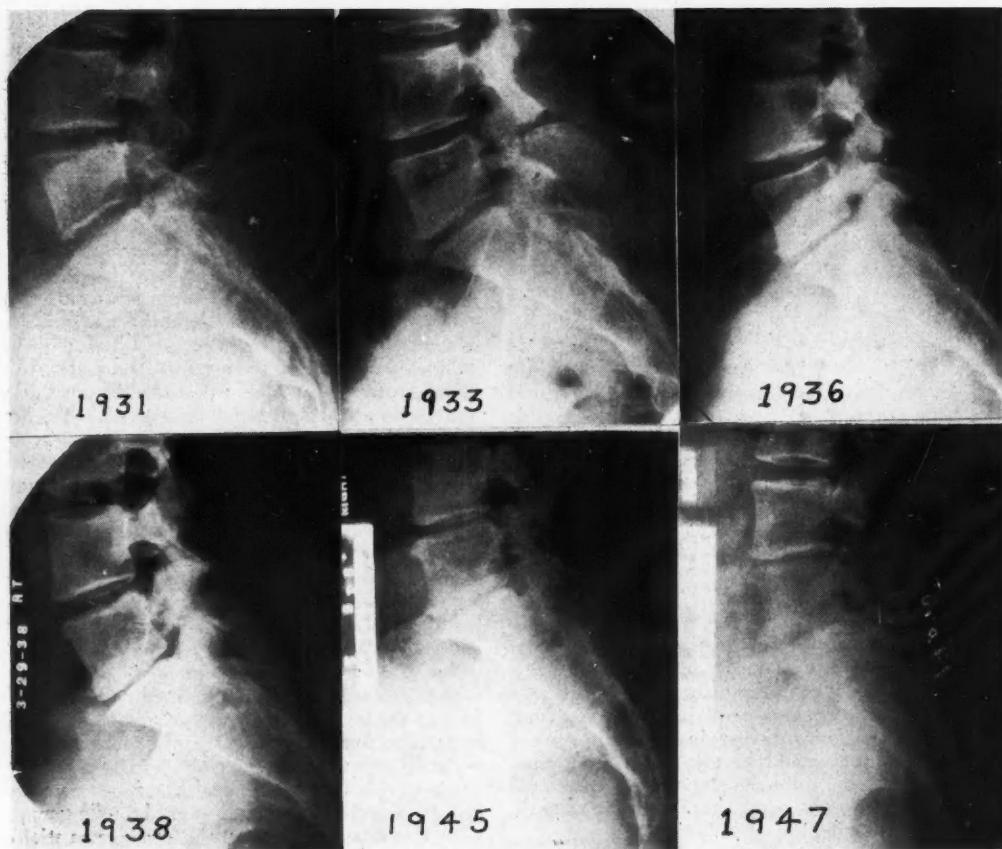


Figure 3

syndrome previously outlined. The series of x-rays began in 1931, and rather definite changes were present when symptoms first suggested an x-ray examination. (Figure 3.) She was unusually active during her 'teens, and it is her belief that her vigorous activities of this early period were a factor. Falls from horses and other severe types of trauma may have had an effect, then and later, for she has ridden horses for many years. Conservative care proved useless when constant misery lasted from July to November, 1945, and it seemed time for surgical relief. We shall be forever grateful to my associate, Dr. John Black, who dissected the fifth right lumbar nerve root from a protruded disc that had ruptured through the posterior longitudinal ligament between the fourth and fifth lumbar bodies, and the patient was transformed from an invalid to active life. The series of roentgenograms over the period of years since 1931 can be followed to see the progressive thinning of the lumbosacral interspace, the development of hypertrophic spurs on the vertebral bodies, and the eburnated surfaces of the vertebrae adjacent to the severely altered disc. It is noteworthy that at the lumbosacral level with its very narrow interspace, no nerve root pressure was found, but at the next joint above was found the large disc protrusion. This interspace between the 4th and 5th lumbar bodies was narrowed, but an observer not sensitive to minor variations would likely consider the narrowing within normal range.

TREATMENT IN GENERAL

The mention of operation does not mean that surgical treatment is a desirable solution for the majority of patients with backache. There are a number of reasons why conservative care needs to be emphasized, and a review of conservative measures employed in the past is in order before arriving at any conclusions as to therapy:

1. Rest, emphatically, has been the one most helpful form of treatment, and in outlining the regime to be followed, one had best not violate this dictum demanding rest during the acute period; and in aggravated cases, the acute period may be prolonged. In the surgical exploration of spinal nerve roots that have been severely injured by the pressure of displaced discs, it has often been observed that the injured nerve root has been edematous and markedly swollen. (Figure 4).⁹ When exercise for strengthening weak muscles or stretching procedures for contractures are employed in such acute cases the irritation can definitely be prolonged. Rest will often be advantageous early in an episode of trouble even after moderate injury, when the patient feels that with a measure of discomfort he can continue on the job. Rest in bed without getting up for toilet or meals is best. In the supine bed patient, the knees should be on a pillow and the head and shoulders raised slightly in order to take advantage of the flat back position. When on the side, the patient should bend hips and knees again to avoid the hollow back position. Traction of six to ten pounds on each leg has often been used, with apparent help, but again it seems reasonable to carry this out without hyperextending the lumbosacral spine. A bed made firm by boards under the mattress may be helpful.

2. The second remedy tried by time is further rest to the region provided by support after the patient gets out of bed. Various corsets, braces and casts have been used and the one criterion is that they

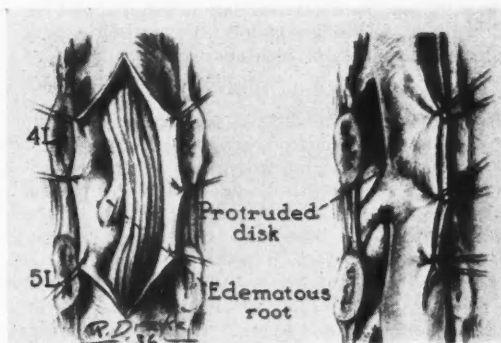


Figure 4

be well fitted and do the work intended. The objection is raised that the industrial patient may abuse the privilege of wearing a support and may use it as an excuse to prolong and magnify his complaint. This is a possibility, but even the industrial patient must have rest to this region in case of injury to the lumbosacral mechanism. Here again there are different views. Watson-Jones applies a plaster corset, suspending the patient with a Sayre head sling, and continues support for a minimum of three months. He is impressed by this same belief that early exercises are not called for in these patients.¹⁸ Others, notably Williams,²⁰ of Dallas, starts exercise much earlier and is impressed with the importance of postural rehabilitation.¹⁹ The only definite rule that I can give is that rest is of paramount importance, and exercises and stretching, if carried out, must not continue the irritation.

3. Heat and massage have been used through the ages and as a rule mankind in general enjoys warmth and massage of the back. In certain instances it definitely irritates, however, and should not be continued at the expense of comfort.

4. Manipulation has also been used since time immemorial. Because of an occasional paraplegia produced by manipulation and more frequent paralysis of the external popliteal nerve brought out by the Baer type of procedure, and because of the frequent temporary nature of the relief provided, manipulation has a limited value. In the "off again on again" type of case it has some basis for trial, but manipulation can easily be carried to unreasonable extremes, for instance when the patient has progressed to the stage of an irreducible protrusion. Too often, manipulation has been carried out empirically without a clear idea of what condition is present and what one hopes to accomplish. Doctor and patient are prone in these instances to hope for mystic and magic. It is hoped that something can be done for a set of symptoms where facts are lacking about the exact condition present.

5. I am skeptical about the marked value of novocain injections, but because careful men have recommended it, I shall wait for more evidence and information.

6. Pain may demand medication. Aspirin and codeine are usually sufficient but heavy narcotics may be needed for short periods of time.

CHOICE OF TREATMENT

Treating the patient first of all and his backache secondly is sound advice. This cannot be done unless the doctor is a physician first of all and a specialist secondarily. This cannot be done without a careful general history and examination, in addition to the specific orthopedic tests. Measures necessary to improve the patient's general health are often of much import, and without a general survey many aids can be missed by not considering such things as obesity, malnutrition, hypo and hyperthyroidism, avitaminosis, etc. Possibly the choice of treatment is often decided by the patient's age, state of health, and particularly by his ability or desire to cooperate. A general knowledge of the patient's background must be attained, and the orthopedist must be enough of a psychologist to appreciate possible psychic factors. It is claimed that malingerers and psychoneurotics are repeatedly manufactured by the attitude of the doctor or his assistants. As it is the doctor's first duty not to do harm, this possibility must be appreciated and watched when treatment is being chosen.

To simplify the plan of treatment, it is helpful to divide the patients complaining of low back pain into mild, moderate and severe classes.

1. In the mild class, symptoms are generally referable to the low back only, and episodes have been few. Though this individual may be at the start of the progression of events suggested by Schmorl's

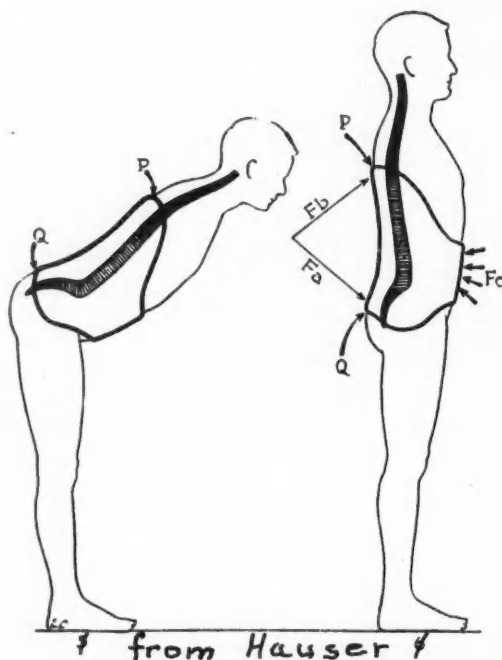


Figure 5

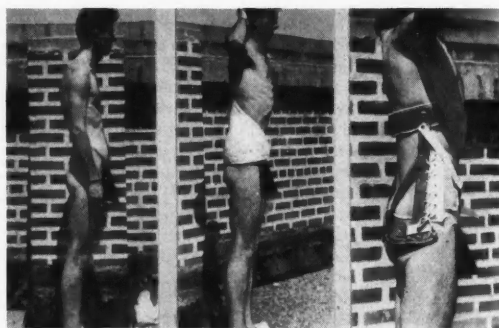


Figure 6

work, he will not tolerate more treatment than low back taping and possibly heat with massage to help him over the attack. If faulty posture is present, posture training will probably do more for this patient than it will in the more extreme and neglected cases. It will be harder to sell the posture idea to this individual. At least he should be instructed to avoid the attitude of lifting in the forward bent position and be schooled how to avoid other attitudes that may initiate further trouble.

2. The moderate cases are those in which the patients have moderate but definite disability because of low back pain, but with few or infrequent recurrences. Referred pain may be to the buttock only, or down the leg. Rest in bed without getting up for meals or toilet is important. Addition of traction has theoretical value and prolonged trial to support its use. At least it serves to help keep the patient in bed. It is well to be on the side of too much rest than not enough. The "active" cast used so regularly by Hauser (Figure 5)⁶ and others, has much in its favor, for it provides support for the lower back and helps maintain the attitude of the flattened lumbar curve that these patients assume in the acute stage of protective spasm. It further forces the patient to use his voluntary muscles that maintain the erect attitude, and it forces a certain amount of stretching of the contractures. By forcing the use of muscles to hold the trunk erect, it avoids the objection that casts cause muscular atrophy. I employ it also in cases of early low back injury, particularly when there has been a hard fall on the buttocks and I wish to provide support for the low back in good posture. The "active" cast can be succeeded or supplanted by the Goldthwaite or Williams type of brace in order to support the lower abdomen and maintain an erect spine from the sacrum to the 9th dorsal level (Figure 6). Rest and support has priority in this class and activity to improve posture, desirable as it may seem, must not produce irritation.

3. The severe cases include those with severe and repeated attacks of pain and disability with a prolonged history. Attacks are likely to be protracted and with very incomplete remissions. Certain of these patients will profit by conservative care, but, if not so relieved and rather definite signs that a

protruded disc is the most likely cause of trouble, ultraconservatism is unwarranted. Long enough contact with the case to be able to rule out tuberculosis and malignancy is important. Other causes of intraspinal, radicular, plexus and nerve trunk pain must be eliminated. I once found the cause of a severe sciatic neuritis to be an aneurysm in the pelvis. Neurologic consultation with the evidence from the pantopaque myelogram will help rule out other intraspinal causes of pain and usually, but will not always, show the disc protrusion. At times its value is more negative than positive; for instance, abnormalities of the two lower spinal discs are not as accurately visualized by contrast media as changes in the three upper lumbar discs.

A young wage earner not burdened with a compensation complex, if disabled, may be a subject for operation earlier than a sedentary person who can afford longer watchful waiting. The decision to employ surgical therapy should not be undertaken lightly or without the protection of consultation. Not all these patients are relieved and the operation carries with it a mortality rate, small, but definitely a threat. Patients with a compensation claim or a legal action pending are less favorable subjects for surgery than patients without these matters to consider. Craig reported that it was his observation during the recent war, that disc operations in the foreign field were not successful except in officers and enlisted men who wanted to remain overseas. Then he found that in this country with careful selection of cases, almost 100 per cent of the officers returned to duty, and a slightly smaller percentage of enlisted men.⁴ These findings argue for care in choosing operation for patients with compensation claims, but even here conservatism can be carried too far.

Whether fusion is to be done or not done following procedure for the protruded disc has provoked much discussion. Reasons contrary are several:

1. Fusion requires a moderate increase in the scope of the operation.

2. Should a good result not be attained, future exploration may entail the difficulty of removing a bone graft and digging through much bone.

3. Fusion concentrates the strain above the level of the fusion.

Reasons in favor are several:

1. Removal of an intervertebral disc increases the instability of a joint that is already faulty.

2. A considerable number of painful backs that follow neurosurgical procedure without fusion are later relieved by fusion.

3. The use of two teams does not greatly prolong the time of operation and where only low back fusion is done, the postoperative period of disability is not so prolonged as formerly thought necessary.

This problem will have to await more evidence. At present I favor fusing a larger proportion of the patients when the intervertebral disc has been removed. When there is need for as simple an operation

as possible, as in older people, it had better be omitted. In younger patients where stability of the lower back is more important, fusion is more important.

1416 Melwood Drive.

TABLE 1.—*Classification of Causes of Back Pain*

- | |
|---|
| I. POSTURAL STRAIN
(Chronic drag of gravity) |
| II. TRAUMA
1. Injury to soft tissues
2. Injury to vertebrae and joints
3. Injury to intervertebral discs |
| III. INFECTION
1. Spondylitis deformans
2. Fibrositis and myositis
3. Actinomycosis
4. Blastomycosis
5. Brucella abortus
6. Osteomyelitis
A. Pyogenic organism
B. Typhoid
7. Epidural abscess
8. Neisserian involvement |
| IV. CATCH ALL CLASS
(Growth disturbances, metabolic, endocrine, senescent and neurotropic)
1. Osteochondritis (Calve)
2. Adolescent epiphysitis (Scheuermann)
3. Senile epiphysitis and osteoporosis
4. Neuropathic joints of tabes and syringomyelia
5. Parathyroid tumor
6. Paget's disease
7. Gout |
| V. CONGENITAL ANOMALIES
1. Defects of isthmus (most important)
A. Spondylolisthesis
B. Spondylosis
2. Spina bifida (occulta)
3. Asymmetrical lumbosacral facets
4. Sacrilization transverse processes
5. Lumbarization transverse processes
6. Extra or deficient vertebrae
7. Wedged vertebrae |
| VI. NEOPLASTIC
1. Benign
A. Osteoma and osteochondroma
B. Giant cell tumor (may be malignant)
C. Hemangioma
D. Eosinophilic granuloma
2. Malignant
A. Primary
a. Sarcoma and osteogenic sarcoma
b. Lymphoblastoma
c. Ewing's tumor
d. Multiple myeloma
B. Secondary (metastatic)
a. Carcinoma of breast
b. Hypernephroma
c. Thyroid
d. Prostatic carcinoma
3. Tumors of the spinal cord, its meninges, roots and the filum terminale |
| VII. VASCULAR
1. Aneurysm |
| VIII. PSYCHOGENIC
1. Hysteria
2. Malingering
3. Psychoneurosis |

QUESTIONS AND ANSWERS

DR. JONES: "My first question: What mechanism is presumed to occur when immediate relief of severe back pain is obtained by manipulation?"

I believe that immediate relief of back pain, particularly radicular pain, takes place upon manipulation, when the protruding disc is taken back into the intervertebral space. This can be seen in surgery. When the patient has the back hyperextended, the disc will repeatedly be seen to protrude. If the back is flexed, and the abdomen raised, it can be seen at times that this disc will be reduced into the intervertebral space.

Question: "Why do you conclude that disc surgery weakens a back, when it is already weakened prior to surgery?"

I don't know that I do conclude that disc surgery weakens the back. It is weak before surgery, but after the intervertebral disc has been scooped out, the instability of structures there possibly may be increased. I don't think there is any argument on that score, because I believe in making the thing stable whether it is loose because of surgery or degenerative changes in the disc.

Question: Several questioners wish to know the post-operative care.

As to the care following surgery in which we have done a fusion operation, I may recount the experience of my wife.

She was in bed for about two weeks. She could walk up and down the stairs at the end of three weeks. After six or eight weeks, she did a good part of her housework. Now, a year and half later, she has been riding horseback for about a year. That is about as rapidly, I think, as it could be carried along. Formerly we thought cast fixation was necessary over a long period. We now believe that for a low back fusion, the muscles themselves are the greatest means of providing the fixation needed. A series observed over a period of years may be needed to be sure that such short fixation is adequate.

Question: "In so-called, 'subluxation,' what portion of the spine do you consider to be the site of the trouble?"

It is my belief that luxation, for instance, of the sacroiliac joint is of very rare occurrence. During the relaxation of pregnancy, probably this does take place, because the patient waddles, and has difficulty in walking. After a fracture of the pelvis, in which there is severe trauma, probably a disruption of the sacroiliac joint does take place, but it is my belief that the strong structure of the sacroiliac joint does not often allow luxation.

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A Consideration of Etiology in the Development of the Ruptured Intervertebral Disc

RUPERT B. RANEY, M.D., and AIDAN A. RANEY, M.D., *Los Angeles*

PATHOLOGIC changes in the lumbar intervertebral discs are now recognized as one of the most common causes of low back pain. This is not at all surprising since most people develop such lesions at one time or another in their lives. The ordinary stresses and strains thrown on these structures by routine activity cause wear and tear exactly the same as on anything else subjected to continuous use. The symptoms in the majority of instances are mild and are of no concern to the patient. The lesion usually heals spontaneously without medical attention, and causes little or no disability.

When the pain is sufficiently severe to cause concern or disability, medical attention is usually sought. Conservative management of these people by immobilization of the back, rest, medication for pain usually suffices. However, a small number of cases resist nature's healing forces and eventually surgical removal of the lesions is required.

REVIEW OF LITERATURE

The rather voluminous literature on the subject is somewhat controversial. Dandy⁴ and Jelsma,⁶ who advocate simple removal of the disc, report approximately 90 per cent good results without fusion. A shorter morbidity period is emphasized; fusion is even discouraged. Grant,⁵ in a critical review of the literature and a report of 200 cases, made it clear that there is no uniform standard for classifying postoperative results. The figures from many sources indicate, however, that good results were obtained from simple removal of the disc in 70 per cent or more of the cases. In the discussion of Grant's paper, Mixter indicated his belief that in patients who are required to do heavy labor postoperatively and who demonstrate abnormal mobility of the affected joint, a combined removal of the lesion and fusion might very well be done.

Briggs and Keats² recommend removal of the lesion and fusion to prevent collapse of the joint space and secondary root compression, with excellent results, but statistical data is not given. Peyton and Levin⁸ advocate fusion in addition to removal of the disc and report back pain alleviated in 70 per cent of cases. Compere³ reports using the combined operation for five years with good results, but no figures are quoted.

Magnusen⁷ gives an excellent account of the complex structures of the lumbar joints. The pathologic effects of stress and strain are described but no mention of the hydrodynamic action of the semi-fluid

nucleus pulposus on the joint during these stresses is made. Fusion in all cases is strongly recommended, but no figures are given.

Atkin and Bradford¹ reported on 170 cases operated by various orthopedic surgeons and neurosurgeons on the list of National Insurance Carrier (1940-1944). Twenty-one cases had removal of the lesion and fusion. In only 25 per cent of the cases was the result classified as good. One hundred three cases had only the disc removed. Approximately 40 per cent of the cases were classified as good results. In 67 cases in which operation was performed, no disc was found. Complications: There were six fatalities, nine cases of sepsis, one case of osteomyelitis, four cases of phlebitis, one spinal headache (so-called), six cases of toe drop, and three cases of quadriceps paralysis.

The available figures would serve to discourage a combined disc removal and fusion operation. However, when the figures and complications are scrutinized, it would appear that one might question the quality of work rather than the type of operation employed.

ANALYSIS OF CASES

We have analyzed 200 consecutive cases of ruptured intervertebral discs in patients suffering sufficiently, in our opinion, to justify surgical treatment. During the five-year period (1940-1945) in which these cases were seen, there were 211 patients with low back and leg pain operated upon. Nine had other lesions, and two others, both of whom recovered, were omitted to make the even number of 200 cases.

In this series the clinical history and findings were typical of ruptured intervertebral disc in about 80 per cent of the patients, and in these cases spinal myelography appeared unnecessary. If a gross filling defect were not seen, the unwary might be led to the false impression that an abnormal disc was not present. Whereas the experienced would recognize these laterally situated lesions on the history and clinical findings, and not be misled by a false negative myelogram.

On the other hand, if the clinical picture varies from the typical pattern, e.g., bilateral leg pain, nocturnal backache, unilateral leg pain through several dermatomes, ill-defined sensory changes in more than one dermatome, etc., then a spinal myelogram is imperative in order to rule out or establish the presence of other lesions—neoplasms, vascular lesions, adhesive arachnoiditis, etc.

In selecting patients for operation, we have demanded certain definite criteria: (1) Acutely disabling intractable pain and physical signs of disc lesion not responding to conservative treatment;

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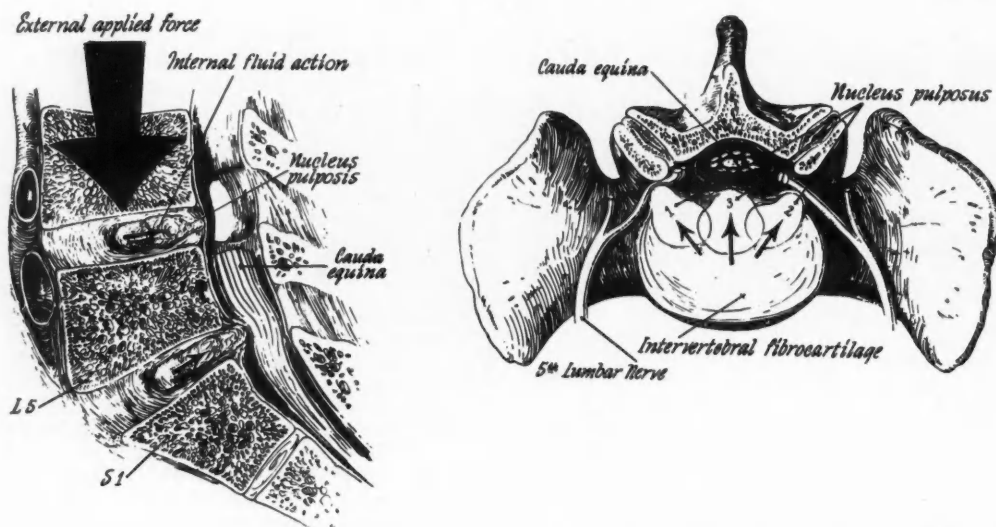


Figure 1.—Large arrow at left side shows direction of external applied forces from ordinary stresses and strains. Small arrows show usual direction of internal fluid action of nucleus pulposus as a result of external applied forces. At right, small arrow No. 1 shows lateral migration of nucleus pulposus impinging on nerve root. Small arrow No. 2 shows migration without nerve root involvement. Small arrow No. 3 shows the direction of force from the occasional midline lesion.

(2) Recurring attacks of acute, disabling pain and physical signs where it is economically unsound to consider continued conservative management; (3) Danger of irreversible disabling neurologic changes. The latter is only occasionally encountered.

PRINCIPLES OF SURGICAL TREATMENT

Compression of the semi-fluid nucleus pulposus from minor stress and strain creates internal pressure on the annulus and binding ligaments. There is then a tendency of the nucleus to migrate in the direction of the least resistance. Any force applied to weaknesses in these confining structures will cause injury and further increase focal vulnerability. Through this mechanism, we believe, a great deal of common back pain is precipitated. Furthermore, repeated application of these forces will eventually cause rupture and impingement on regional structures (Fig. 1).

Surgical treatment is designed to terminate the operation of these pathogenic internal forces by removal of all the abnormal material from all the affected discs. Since the fourth and fifth lumbar discs are so frequently affected coincidentally, we, among others, believe that both these discs should be explored when either is known to be pathogenic. Even at times, when the findings indicate, the third also should be inspected. They are exposed with a punch rongeur, leaving the laminae and facets intact. The nucleus pulposus and the cartilagenous plates of the opposing vertebra are then removed, but the annulus is preserved. The space is then packed with bone chips, in most instances, and the nerve root is then decompressed dorsally (Fig. 2.).

The principal aim, then, of the operation is to remove the disease and restore the back to as near

normal as possible. The bone chips in the place of the nucleus pulposus are not intended to cause fusion. On the contrary, they are intended to maintain the joint space and serve as a framework for cicatricial formation. In the majority of cases the calcium has disappeared by the end of six or eight months without fusion (Fig. 3).

STATISTICAL DATA

The location of the lesions in this series was as follows: Multiple lesions at lumbar 3, 4, and 5, were found in 3 per cent of the cases. Double lesions at lumbar 4 and 5, in 29.5 per cent of the cases. Single lesions at lumbar 5, in 36 per cent of the cases; at lumbar 4, in 28.5 per cent; at lumbar 3, in 1 per cent; at lumbar 2, in .05 per cent; at thoracic 12, in 1.5 per cent.

In the entire group of patients, 168 were private, about equally divided in light and heavy occupations. Of these patients, 85.1 per cent returned to their original work relieved, while 8.9 per cent were relieved but changed to lighter occupations, making a total of 94 per cent good results; 3.5 per cent were relieved of their preoperative physical evidence of disease but continued to complain and, therefore, were classified as unimproved. Another 2.5 per cent were unimproved, showing varying degrees of muscle spasm on activity, and were suspected of having additional disc disease. Some patients among the "good results" who had secondary operations showed adjacent disc disease and were relieved after its removal. The impression gained from earlier experiences is that, if removal is confined to lesions which can be demonstrated by myelography, much of the disease may be missed. Leg pain is ordinarily relieved, but disabling backache returns from an

adjacent lesion or lesions in a sizable percentage of cases.

Results in the industrial cases, of which there were 32, were not so encouraging: 43.7 per cent returned to their original work; 3.2 per cent were unimproved; 34.4 per cent were relieved of objective signs, did spotty work, but were generally back-conscious and compensation-minded; 18.7 per cent were relieved of objective signs but began to complain of pain when instructed to return to work. Many of these employed an attorney and set out on the mission of establishing permanent disability. This group, by and large, had been badly handled by the insurance carrier. Compensation had been repeatedly stopped for one reason or another, in spite of their disability. They had been accused of laziness, dishonesty, hysteria—in fact everything, including malingering. Several of these patients later actually admitted relief, but because of the abuses during disability insisted on having their inning, and did.

The age incidence has not varied greatly from other figures; the oldest patient was 68 years old and the youngest was 16. The majority were in the third, fourth and fifth decades of life. The duration of symptoms varied from four months to 25 years. The average hospital period was two and one-half weeks. In the 94 per cent of good results among private patients the shortest loss of time from gainful occupation was three weeks; the longest, 11 months, with an average of three and one-half months. Discomfort usually subsided between the fourth and eighth month. Recurrence of brief and not disabling



Figure 3.—Arrows indicate levels of disc removals. The space was packed with bone chips. Roentgenograms were taken six months later and showed no evidence of chips remaining.

episodes of back discomfort common to the average man, we have reason to believe can, and does, follow in some cases regardless of whether the opera-

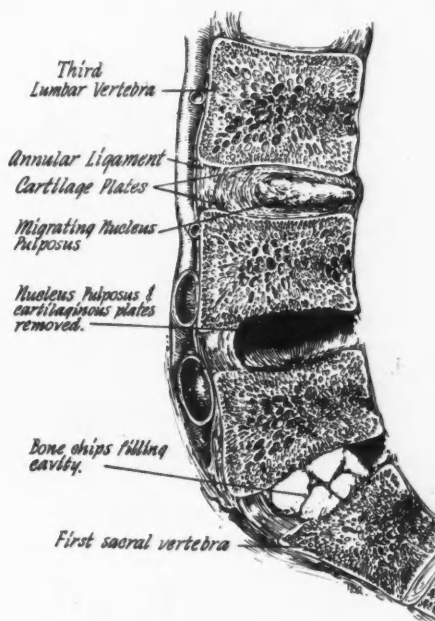
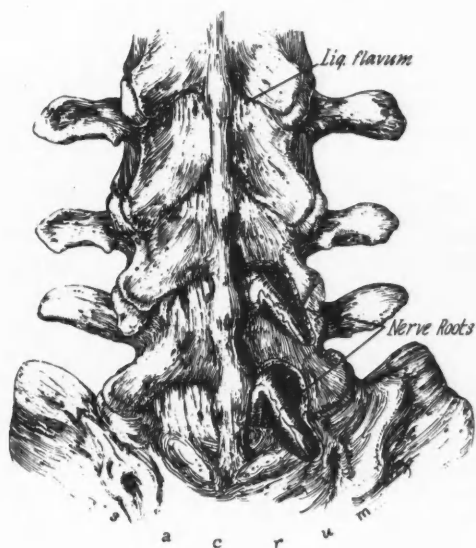


Figure 2.—At left side, exposure and decompression of nerve roots are shown preliminary to removal of diseased disc. On right side, bone chips are shown in position at fifth lumbar disc. Radical removal of nucleus pulposus and cartilaginous plates is shown at fourth lumbar disc. Migrating nucleus pulposus, which occurs in a small number of cases, is shown at third lumbar disc.

tion does or does not include fusion. The result in those cases, nevertheless, can rightfully be classified as satisfactory.

GENERAL IMPRESSIONS

From these experiences, certain definite opinions have been gained. When a multiple disc operation was done, the relief of back pain was much more rapid and permanent. When single fifth lumbar lesions were removed and the fourth on inspection thought to be normal, a small number of patients showed a tendency to some back discomfort on excessive stress. When the fourth was removed and the fifth left intact, a larger number had some back discomfort on excessive stress. Some of these patients were operated upon again because of recurrent severe pain, and the previously inspected disc, thought to be normal, was removed. Relief followed. Secondary operations have shown firm immobilization of the previously operated joint, and an abnormal disc was usually found at an adjacent level. In fourth lumbar disc removals, where there was a partial or complete sacralization of the fifth vertebra, this tendency has not been shown.

Spondylolisthesis, spina bifida, anomalous facets, etc., were among these cases, and the response to removal of the diseased disc or discs did not differ from the response in those cases in which the spines were architecturally normal. These abnormalities are asymptomatic in themselves but may predispose to disc disease. Often in the case of spondylolisthesis the affected joint was firm and the disc above was found to be responsible for the symptoms.

COMPLICATIONS

Transient urinary retention was the most common complication. It cleared in a few days and did not differ from the retention commonly seen in pelvic surgery. Quadriceps femoris weakness appeared in one case of lumbar 2 disc removal. Dermatomal hypalgesia was a frequent pre- and postoperative finding but did not contribute in any way to disability. In two cases of thoracic 12 disc lesions there was preoperatively a complete paraplegia. The paraplegia did not clear following operation. One elderly patient died from cerebral anoxia the third post-anesthetic day. In this case no operation was done; on administration of the anesthetic, cardiac action stopped. It was started again approximately eight minutes later and the usual anoxemia reaction appeared. There were three cases in which there were troublesome wound infections which cleared promptly after removal of infected bone chips that were acting as foreign bodies. There were no surgical fatalities.

SUMMARY

1. Pathologic changes in the lumbar discs are one of the most common sources of low back pain. The vast majority recover without operation.

2. The literature indicates that in patients subjected to surgery 70 per cent or more are relieved by simple removal of the disc.

3. Approximately 80 per cent of patients suffering from disease of the discs can be recognized by the findings and clinical history, and spinal myelograms are not essential.

4. Patients showing a variation from the typical picture of disc disease should be subjected to spinal myelography.

5. Two hundred cases have been reviewed with respect to surgical indications, complications and final results.

6. Patient's consideration of litigation significantly alters the results in industrial cases.

7. There were no operative fatalities and the complications were of little consequence in almost all cases.

1136 West Sixth Street.

QUESTIONS AND ANSWERS

DR. RANEY: My first question: "Will you discuss post-operative care after removal of intervertebral discs?"

Following the removal of one or more intervertebral discs, the postoperative care is in reality very simple. The majority of these patients after operation are allowed to assume any position they desire, except such positions that would throw stress and strain on the back. By the end of three or four days, or even earlier, the passive reclining position may be permitted and is often more comfortable. By the end of twelve to fourteen days the majority are allowed to get out of bed and are sent home, usually with some form of back support. Rarely, abdominal distention is encountered, and when it is it responds to standard symptomatic treatment. Urinary retention, which is common for a few days, can be managed either by catheterization at eight-hour intervals or with an indwelling catheter. The use of chemotherapy during catheterization prevents troublesome urinary infection.

Spasm of the muscles in the back and incisional pain are controlled by narcotics. If muscle spasm persists after three or four days, local heat is usually very beneficial. If it persists, as it does occasionally, for a few weeks after wound healing, rest and hot wet packs are very effective. If it persists beyond eight weeks, one should be suspicious of pathological changes in an adjacent disc.

After leaving the hospital these patients are instructed to avoid everything that may cause stress or strain to the back for a period of four months, since this is the minimal length of time required for healing. The majority of people require six to eight months for the development of a firm cicatrix and stabilization of the joint.

Question: "What percentage of cases of low back pain without sciatica are due to slipped disc?"

The term "sciatica" is a little broad and is often given by the patient as a complaint for any discomfort referred to the lower extremities.

In the case of pain radiating into one lower extremity from the low back, where it follows the anatomic distribution of one, two, or possibly three dermatomes, aggravated by stress or strain to the back, etc., it is my impression that almost all of these cases are the result of disc disease with either bulging or rupture of the structure and secondary encroachment on the regional nerve root or roots.

In this series of cases reported there were nine patients who at operation were demonstrated to have other lesions. Their pain was radicular in character, although it did tend to spread over a little wider area than one or two nerve roots. In these cases surgery disclosed spinal tumors, arteriovenous fistula, etc. It should be emphasized that where the entire sciatic nerve is involved, rather widespread

sensory and reflex changes will be found on examination, and rarely does a ruptured intervertebral disc cause such widespread involvement. Finally, our experience has led us to believe that the persistent recurring lower lumbar radicular syndrome in the vast majority of instances is the result of intervertebral disc disease with spinal root involvement.

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Low Back Pain and Its Management by the General Surgeon

EDMOND DANA BUTLER, M.D., *San Francisco*

THE general surgeon, particularly if engaged in Industrial Surgery, is frequently called upon to diagnose and treat patients with low back pain.

Low back pain is not an uncommon complaint and occurs in approximately 20 per cent of the industrially injured. However, emphasis must be placed on the fact that low back pain can be of constitutional as well as local origin. For accurate diagnosis and treatment, a complete history and physical examination supplemented by laboratory and x-ray studies are indispensable.

HISTORY

In recording the history, the type of pain, mode of onset and duration of the pain are noted. Particular significance is placed upon accurate localization of pain and the distribution of referred or radiating pain in relation to anatomical structures.

One should determine what body positions or attitudes benefit or aggravate the pain. Relief from pain and disappearance of muscle spasm on lying down generally implies that a postural or abnormal mechanical strain has been relieved from the lumbosacral or sacro-iliac joints. Low back sprains and strains, congenital anomalies and traumatic spondylitis should be considered when the patient gives a history of this type of static pain.

Morning pain, or pain which occurs after a period of rest, is usually found in inflammatory conditions. Trauma with superimposed inflammation, myositis, fibrositis and Marie-Strumpell's arthritis are conditions which would produce such pain.

Radicular pain, which is worse at night and ordinarily unrelieved by change of position, is usually due to disc lesions, tumors of the spinal cord and Marie-Strumpell's arthritis.

Constant intractable pain is usually seen in primary or metastatic tumors, some cord tumors and in some inflammatory processes involving the intervertebral disc.

One should inquire into the patient's previous history of back symptoms or injury and response to previous treatment. Such information is helpful in determining prognosis. The possibility of industrial injury or possible litigation should be determined at the time of the first examination. We are also interested in the previous health of the patient, foci of infection, preexisting arthritis, abnormalities of weight, and the possibility of chronic postural

strains which may be related to the patient's occupation.

PHYSICAL EXAMINATION

In examining the patient with low back pain it has been our routine to perform a complete detailed back examination with the patient fully unclothed. This is then supplemented with a thorough general physical examination. Unsuspected disease may at times be demonstrated elsewhere than in the low back. Such conditions may bear a significant relationship to the patient's complaint of low back pain either as a causative or aggravating factor.

The back examination is begun by careful inspection of the patient. This requires only a few seconds but yields valuable information. The patient's general body build in relation to body weight is noted, and his posture studied. Rounding of the shoulders, dorsal kyphosis, winged scapulae, increased or diminished lumbar lordosis, knock-knees, bow legs and pronation of the feet and ankles are looked for.

Further inspection is made for such visible abnormalities as pelvic tilting and prominence of muscle groups caused by spasm. If scoliosis is present an attempt is made to determine whether it is postural or structural and its direction is recorded.

Shortening of the trunk may be present and is suggestive of compression fracture, hypertrophic arthritis, spondylolisthesis, osteoporosis, Paget's disease, epiphysitis, and tuberculosis.

Ranges of spine motion are routinely tested in a standing, sitting and lying position, and any localized or generalized limitation of spine motion is recorded. The exact location and degree of pain is correlated with ranges of spine motion. If the limitation of spine motion is noticeable, it is well to measure the circumference of the chest in full inspiration and expiration. Cases of Marie-Strumpell's arthritis may reveal limited chest expansion as an early finding.

The exact localization of points of back pain and tenderness has proved to be of exceptional value particularly when correlated with specific underlying anatomical structures.

These localized areas of tenderness are usually to be found at ligamentous and muscular attachments, over the spinous processes of the vertebra and over the posterior superior spine of the ilium. With tenderness over the sacro-sciatic notch, one may safely say that such tenderness is most likely due to sacro-iliac sprain or disease.

Tenderness over the lumbosacral joint may often be seen with ruptured intervertebral disc and other types of lumbosacral lesions.

As a rule, localized tenderness means a lesion of that particular region, and generally points toward a muscular strain or sprain. Generalized tenderness

From the Departments of Surgery, University of California Medical School and Franklin Hospital, San Francisco, California.

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is indicative of myositis, fibrositis, or some type of generalized muscular lesion.

Spasm of the back musculature is frequently encountered and is often of a protective nature. Although it gives little indication as to the underlying pathological process, it is helpful in evaluating the acuteness of the condition. Voluntary muscle spasm as demonstrated by the malingerer must be differentiated from true involuntary muscle spasm.

Measurement of leg lengths may reveal the presence of a shortened leg resulting from abnormal development or previous trauma. Such inequality of leg lengths may produce pelvic tilt and scoliosis, and thus give rise to low back strain on the basis of altered spine mechanics.

Muscle atrophy in the back or lower extremities may be present and is often indicative of long standing backache of various types. When accompanied by radiation pain it is suggestive of cord or nerve root involvement. The presence of such atrophy should not be discounted. Muscle atrophy may be the cause for persistent symptoms and delayed recovery until muscle strength and tone is restored by proper exercise.

Neurological examination is often performed to eliminate such lesions as cord tumors, ruptured intervertebral disc or hypertrophied ligamentum flavum. When such a lesion is suspected the patient is referred for neurosurgical consultation. Spinal fluid studies and Pantopaque x-ray examination may reveal the location of the lesion and substantiate the diagnosis.

GENERAL SURGICAL CAUSES OF LOW BACK PAIN

There are many surgical conditions which may refer pain to the back. Only those which refer pain specifically to the low back will be discussed.

Carcinoma of the rectum with involvement of pelvic structures may refer pain to the sacrum as the outstanding or sole complaint. Penetrating carcinoma of the sigmoid colon may refer pain to the left lumbar region. Malignancy of the ascending, transverse and descending colon, after involving neighboring structures, commonly refer pain to the low back. During the past eight years I have detected unsuspected carcinoma of the rectum in five cases on routine examination. Low back pain was the chief complaint in each instance.

Diverticulitis, particularly with abscess formation may have pain in the low back as an accompanying symptom. This is true also of appendiceal abscess as well as pelvic and abdominal abscesses arising from other causes.

Patients with bowel obstruction may complain of low back pain as an accompanying symptom. The location of the pain varies with the site of obstruction. The severity of the back pain is usually proportionate to the completeness of the obstruction.

Less common surgical conditions which may refer pain to the low back are gastro-jejunal ulcer, advanced ulcerative colitis, Meckel's diverticulum, intra and extra peritoneal enlarged nodes, and other abscesses, cysts and tumors.

Metastatic malignancy of the spine from primary carcinoma involving the thyroid, breast, kidney, prostate and testicle is familiar to all of us as a cause of low back pain.

Abbott and Bost have previously described a low back pain syndrome resulting from unreduced, incarcerated or strangulated inguinal hernia. The low back pain is characteristically relieved by reduction or surgical excision of the inguinal hernia.

Other general surgical conditions such as lesions of the esophagus, stomach, duodenum, biliary tract, pancreas, and diaphragm which refer pain to the back, usually do so at a higher level and do not offer significant difficulty in differential diagnosis.

DIFFERENTIAL DIAGNOSIS

X-rays of 200 unselected cases with complaint of acute and chronic low back pain were reviewed. Only 38 per cent of these x-ray studies were considered normal, while 62 per cent demonstrated congenital anomalies or some form of osseous disease. (See Table 1.)

TABLE 1.—Conditions Encountered in a Review of 200 Unselected Cases

Anomaly or Disease	Percent Incidence
Hypertrophic Arthritis	26%
Articular Facet Anomalies and Pathology....	15%
Spina Bifida Occulta.....	13%
Rheumatoid Arthritis	9%
Fractures of the Spine and Pelvis.....	8%
Scoliosis	8%
Six Lumbar Vertebra.....	7%
Narrowed Intervertebral Disc.....	7%
Articulating Transverse Processes.....	6%
Spondylolisthesis	6%
Epiphysitis	2%
Paget's Disease	0.5%

Conditions Encountered in Less Than 0.5 Per Cent of Cases But Not Encountered in a Review of 200 Unselected Cases

Hemivertebra
Osteomyelitis of the Spine
Brucellosis
Tuberculosis of the Spine and Sacro-iliac Joint
Syphilis of the Spine
Benign Tumors of the Spine
Primary Malignancy of the Spine
Metastatic Malignancy of the Spine
Multiple Myeloma

I would like to indicate briefly some of the more common anomalies and forms of osseous disease which must be considered in the differential diagnosis of low back pain.

Hypertrophic Arthritis of the Spine. Characteristic marginal lipping and osteophyte formation is present. This condition occurred to a significant degree in 26 per cent of our cases.

Marie-Strumpell's Arthritis. Both sacro-iliac joints, as well as the apophyseal joints, show narrowing of the joint spaces due to articular cartilage destruction. Dense subarticular bone sclerosis, bone atrophy and fibro cystic changes, are demonstrated. This condition usually develops in adults under 40 years of age. Flexion deformity may develop and the disease may

terminate in fibrous or bony ankylosis. Marie-Strumpell's arthritis occurred in 9 per cent of our series.

Spina Bifida Occulta. This is one of the most common congenital anomalies of the spine. It occurred in 13 per cent of our cases. There is lack of fusion of the lamina of the 5th lumbar and first sacral segments. This renders the lumbo-sacral joint unstable and thus predisposes to strain.

In addition to the spina bifida occulta, variations in size, shape and position of the articular facets may be demonstrated. Such facet changes may allow unnatural and excessive movements of the vertebrae and predispose to strain. Facet abnormalities were found in 15 per cent of our cases.

Sacralized Transverse Processes. This condition may be unilateral or bilateral and may be fused or articulating. If unilateral it is particularly apt to render the function of the lumbo-sacral junction asymmetrical and thereby predispose to strain. This anomaly was found in 6 per cent of our cases.

Spondylolisthesis. Spondylolisthesis is commonly associated with a traumatic or congenital defect involving the pedicles of the 5th lumbar vertebra. This allows the lamina and articular facets to remain in normal relation to the sacrum while the body of the 5th lumbar vertebra displaces forward. This condition occurred in 6 per cent of our series. Narrowing of the intervertebral space is present, and usually occurs at the lumbo-sacral joint. Significant narrowing of the intervertebral space occurred in 7 per cent of our reviewed cases.

Six Lumbar Vertebrae. This condition occurred in 7 per cent of our cases. If unaccompanied by other congenital anomalies it probably plays little part in the development of strain.

Hemi Vertebra. This condition is manifested in incomplete development of the vertebrae. Malalignment results, which produces a potentially weak back on the basis of altered spine mechanics. This condition was not encountered in our series and occurs in less than one-half of 1 per cent of cases.

Structural Scoliosis. Roto-scoliosis may develop on the basis of a congenital tipping of the sacrum. Scoliosis of structural or postural type occurred in 8 per cent of our reviewed cases and must be considered as a cause of low back symptoms.

Epiphysitis. Irregular articular margins with irregular areas of epiphyseal calcification may be present with slight wedging of the vertebral bodies with increasing dorsal kyphosis. Epiphysitis begins in adolescence and is characterized by pain and stiffness in the spine and an increasing dorsal kyphosis. This condition occurred in 2 per cent of our series.

Compression Fracture of the Second Lumbar Vertebra. Fractures of the vertebral bodies occurred in 6 per cent of our cases.

Fractures of the Transverse Processes. Fractures of the transverse processes are not considered as serious as fractures of the vertebral bodies. Treatment and recovery are ordinarily comparable to that of a severe sprain. However, prognosis must be guarded.

All other fractures of the spine, sacrum, coccyx and pelvis not including the vertebral bodies occurred in 2 per cent of cases.

Paget's Disease of the Spine. There is osteosclerosis of the vertebral bodies with thickening of the trabeculae and irregular areas of rarefaction. The cortex is hypertrophied and thickened due to new bone formation on its surface. This produces a fuzzy or cotton wool appearance and increases the diameter of the bone. Paget's disease occurred in one-half of 1 per cent of our cases.

Tuberculosis of the Spine. There is subarticular erosion and absorption of the vertebral body with calcification and abscess formation anteriorly. The intervertebral disc space is involved early and shows narrowing. Tuberculosis occurred in less than one-half of 1 per cent of our cases.

Syphilis of the Spine. Very dense white bony proliferation may be noted, particularly about the joints, with eburnation and fragmentation of the vertebral bodies. The relatively few symptoms are in marked contrast to the extensiveness of the disease of the bone. The history and a positive Wassermann help to make the diagnosis. This condition was not encountered in our review of 200 cases, but was encountered in one instance during the past year. It must be considered in the differential diagnosis of low back pain.

Giant Cell Tumor. Although rare, it is the most frequent benign tumor encountered. It is characterized by expansion of the bone by a vacuolated appearing tumor with prominent trabeculae. It is to be differentiated from bone cyst. Hemangioma, another benign tumor is also seen infrequently.

Primary Sarcoma. This may be manifested as an osteolytic lesion. There is absence of bone regeneration because of rapid growth of the tumor. Primary sarcoma of the spine is rare and was not encountered in our reviewed series.

Multiple Myeloma. The normal bone structure of the spine and pelvis is replaced by irregular punched-out osteolytic lesions. A positive test for Bence-Jones protein in the urine helps to make the diagnosis. This disease is rare. Multiple myeloma was not encountered in our present series of 200 cases but was found to be the cause of low back pain in one of our cases during the past year. It must be considered in the differential diagnosis of low back pain.

Metastatic Malignancy of Breast Origin. Metastatic malignancy although occurring in less than 1 per cent of cases is the most commonly occurring tumor of the spine. Carcinomas of the breast, prostate, thyroid, kidney and testicle may metastasize to the spine.

TREATMENT

Experience has taught us that the majority of patients suffering from low back pain, including those with sciatic nerve pain, will recover completely under a conservative plan of treatment.

If the patient localizes his pain or tenderness to one or two specific points, these areas are often in-

jected with Procaine Hydrochloride solution. This procedure is usually reliable in differentiating referred pain arising from local sprains or strains from true radiation pain resulting from cord or nerve root lesions. From a therapeutic standpoint it has also proved its effectiveness. It is not an unusual experience to obtain complete clearance of a patient's low back pain and positive objective findings with one or more such injections.

Only those patients suffering from mild degrees of low back pain are treated as ambulatory patients. Diathermy or infra red lamp heat is applied to the low back and this is supplemented by gentle massage and postural exercises. Adhesive strapping is frequently used for additional support. Codeine and aspirin are prescribed freely for relief of pain. The patient is instructed in a regimen of home treatment. This includes local heat, massage, corrective exercises, boards under the mattress, and avoidance of heavy lifting, stooping, and driving.

All patients demonstrating marked pain and spasm in the low back and particularly those with sciatic scoliosis are routinely hospitalized. They are treated by complete bed rest on a firm mattress supported by fracture boards. Buck's extension is applied to each leg with five to eight pounds traction. The lumbar spine is flattened and the hips are flexed 30 degrees or more. Such traction with the low back flexed is particularly applicable in cases of suspected rupture of the intervertebral disc. Heat and gentle massage are instituted early to relieve pain and muscle spasm. When this is accomplished, postural exercises are started under a trained physiotherapist to strengthen the back and abdominal musculature.

Unless satisfactory subsidence of pain and tenderness is realized in approximately seven to ten days time, the patient's spine may be gently manipulated. This may be performed with or without anesthesia, depending upon the amount of relaxation desired. Manipulation is not performed in cases with marked arthritis, spondylolisthesis or ruptured intervertebral disc. Ordinarily the patient is treated intensively in the hospital until symptoms are improved and spasm has subsided. Discharge from the hospital, however, does not terminate treatment. Physiotherapy, exercises to strengthen the back and abdominal muscula-

ture and a rigid regimen of home treatment are continued until the back symptoms and findings have completely cleared. Belts, braces, and casts, although used infrequently by us, have a definite place in the treatment of low back pain. The prolonged and indiscriminate use of belts, braces, and casts may produce muscle atrophy and joint stiffness. To avoid the development of a chronically weak back we supplement their use with postural exercises whenever possible. We dispense with the use of belts, braces and casts as soon as the back condition permits.

Using a similar plan of conservative treatment, Kuhn of Boston found that 77 per cent of 1,000 cases suffering low back pain alone, and 79 per cent of 449 cases suffering low back pain with sciatica, recovered completely. In his series, symptoms persisted for an average of 48 days, with disability ranging from one week to ten months.

SUMMARY

A complete history, physical examination, x-rays and laboratory studies are indispensable for accurate diagnosis and treatment of low back pain.

Patients suffering low back pain will demonstrate some form of anomaly or osseous disease by x-ray studies in the majority of cases. These abnormal findings must be carefully evaluated as they may be, but are not necessarily, related to the patient's low back complaints.

The great majority of patients suffering low back pain with or without sciatic pain will recover under a conservative plan of treatment. Where conservative treatment is not indicated or has not been successful the patient should be referred to an orthopedist or neurosurgeon for more specialized diagnosis and treatment.

One should bear in mind that some general surgical lesions may produce low back pain as a cardinal symptom. It must never be forgotten that low back pain may be the presenting symptom in entirely unsuspected malignant disease of the rectum, sigmoid colon and other pelvic structures. Any patient with unexplained low back pain who has not had this possibility fully explored has not been completely examined.



Back Pain From the Gynecological Standpoint

EARL B. KING, M.D., *San Francisco*

MANY gynecological complaints lend themselves to relatively easy evaluation and institution of proper therapeutic measures. Unfortunately, the complaint of "backache" does not often fall into such a group. Backache as a symptom is all too frequently difficult to evaluate, its origin is apt to be obscure, and the therapeutic measures used are many times ineffectual.

The exact mechanism by which pain is produced and the anatomical pathways along which the afferent stimuli travel are always of interest. Suffice it to say that at the present time no completely satisfactory explanation of these factors is possible. Inasmuch as back pain due to pelvic disease has been relieved by severing the second, third, and fourth sacral nerves, it has been inferred that afferent fibers must run through these trunks although they have not been adequately demonstrated. Likewise, it is felt that there must be afferent fibers, the so-called viscerosensory nerves, running upward through the sympathetic chain with a resulting referred type of pain to the sacral area, but again positive proof is absent. This lack of anatomical knowledge causes us to fall back on clinical observation and experiences; i.e., given a patient who has a pelvic lesion and who likewise complains of back pain, we know that appropriate treatment for the specific lesion will in some cases relieve the complaint of backache. All too often, however, the back pain has little or no connection with the condition of the pelvis, and a careful orthopedic, urological, or neurological examination will uncover the true cause for the discomfort. Greenhill² states that "the backache in less than half of all women is due to disturbances in the pelvic organs or to abnormalities in the kidneys." This is in agreement with most other careful observers. It is likewise generally held that back pain of pelvic origin is fairly definitely localized to the sacral area and that pain above this region is not due to pelvic pathology. The entities that are associated with this type of back pain can best be discussed by grouping them into appropriate headings.

Back pain due to abnormalities of position. It is unfortunate that the gynecologist's viewpoint concerning the significance of a retroflexed or retroverted uterus is not more widely understood. A uterus that is normal in size, shape, and mobility but which has assumed a retroposition practically never gives rise to back pain. This fact has been established by gynecologists by observing the large number of women who have a completely asymptomatic retroposed uterus, along with the disappointing results in

the follow-up observations on women who have had suspension operations done for the supposed cure of backache. A rather graphic chart was published by Miller³ showing the incidence of operative correction of retrodisplaced uteri at the University of Michigan Hospital since 1901. At that time 75 per cent of the patients seen with retrodisplaced uteri were subjected to an operative procedure to correct this condition. Thirty years later, that is, in 1931, the incidence of operative procedures had dropped from 75 per cent to 0.9 per cent. A similar curve could be compiled from any major center in the country. There remains the very occasional case where the cause-and-effect relationship will hold true and this can readily be ascertained by resorting to the use of a properly fitting pessary. If symptomatic relief is obtained with the uterus held in an ante-flexed position and if the retroposition and pain return when the pessary is removed, the possibility of operative measures can be considered.

It is an infrequent occurrence for patients who have a marked relaxation of the vaginal introitus to have backache as a chief complaint. When it is a predominant symptom, one should be very cautious in promising relief following the correction of the relaxation.

A third type of abnormality of position is that associated with a prolapsed ovary. This condition, at times, seems to be the cause of dyspareunia with an associated recurring dull back pain. Again, it is rare to have this latter back pain as the presenting symptom, and many times one will find an associated postural state that will be primarily responsible for the symptom.

Back pain due to inflammatory states. A chronic cervicitis, particularly where a boggy, hypertrophic cervix is present, will cause not only the local symptom of leukorrhea but not infrequently will be responsible for an associated inflammatory reaction in the pelvic lymphatics, particularly along the course of the uterosacral ligaments. When this latter condition is present, as evidenced by thickening and induration along with pain and tenderness of the uterosacral ligaments, it is often that we find the patient presenting herself with back pain as one of the predominant symptoms. It is gratifying to find how many of these patients will respond to appropriate local therapy in the form of hot douches or cauterization of the cervix. Occasionally amputation of the infected cervix will be necessary before a cure can be obtained.

In the group of patients who present themselves with evidence of inflammatory involvement of the upper generative tract, be it acute or chronic, it is not uncommon to find that one of their complaints will be that of backache. On the other hand, it is rare to have this as the chief complaint. In the differential diagnosis between acute pelvic inflammatory

From the Division of Obstetrics and Gynecology, University of California Medical School, San Francisco.

Read as a part of the panel discussion of back pain before the sections on General Medicine, General Practice, Radiology, and Neuropsychiatry, and General Surgery at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

disease and appendicitis, it has been stated by Boyce¹ that the presence of backache is extremely suggestive of the former diagnosis, inasmuch as he found it extremely uncommon for an acutely inflamed appendix to give rise to this symptom.

In the group of patients with chronic pelvic inflammatory diseases, it is frequently possible to obtain a history of dull, nagging, low lumbar or sacral pain. It is likewise true that in the vast majority of such patients the back pain will be due to an associated orthopedic condition, such as poor posture, and if we limit our attention solely to the pelvic status we will be disappointed in our results. However, it is true that with a small number of patients the back pain may be definitely due to the pelvic lesion, particularly if there are adhesions present between the posterior parietal peritoneum and the adnexa or uterus.

Back pain due to tumors and cysts. It is a surprising thing how rarely we find back pain that can definitely be ascribed to the presence of even quite large pelvic tumors or cysts. There may be an associated complaint of backache but if relief is promised with the removal of the tumor, the incidence of failures will be high. Occasionally the pull or stretching of the pedicle of an ovarian cyst will be associated with backache, although it is more common to find that the pain is localized in one or the other adnexal areas. Myomatous tumors of the uterus practically never cause back pain unless there be an associated pelvic inflammatory condition with the presence of adhesions.

Malignant tumors of the pelvic organs will occasionally result in back pain, either from direct extension into the surrounding tissues or from metastasis to the lumbar spine or sacral area.

Back pain due to Endometriosis. One of the most distressing conditions that gynecologists are called upon to treat is that of endometriosis. Undoubtedly the most characteristic symptom of this disease is that of a gradually increasing amount of dysmenorrhea, and the patient is apt to describe the pain as being cramp-like in nature and located deep in the pelvis. There will be times, however, when back pain will be a predominant symptom. In such cases one is apt to find that the posterior surface of the uterus and the cul-de-sac are involved to a considerable degree in the endometriotic process and that there are dense adhesions running to the rectum and the posterior parietal peritoneum. If the process is limited to the ovary alone in the form of the so-called "chocolate cyst," one practically never finds sacral pain to be an important feature of the case.

Back pain in association with pre-menstrual tension and/or dysmenorrhea. A frequent complaint of women during the child-bearing period is that of increased nervousness and restlessness which will appear a few days before the onset of each menstrual period and which is relieved following the commencement of menstrual bleeding. These complaints seem to have no correlation with the presence or absence of menstrual cramping or dysmenorrhea.

However, it is not uncommon for these patients to have an associated dull, low back pain during this period of tension. The cause of the back pain is difficult to determine but it may be due to congestion as a result of an increased pelvic circulation and an associated edema of the pelvic tissues. Relief of this syndrome is not always easy. Ammonium chloride in a dose of one gram three times a day during this period may be helpful. Patients who fail to obtain relief from this therapy may sometimes be helped by small doses of testosterone or occasionally by the use of progesterone.

Back pain in association with dysmenorrhea is uncommon unless there be evidence of actual pelvic pathology present, such as inflammatory disease or endometriosis. With these patients the back pain is apt to be inconsequential compared with the lower abdominal cramp-like or colicky pains, and whatever therapy is necessary to relieve the latter almost surely will afford relief for the back pain.

Back pain due to psychogenic states. It is always a difficult decision to reach when we wish to ascribe the back pain to a psychogenic origin. Certainly, every organic cause, not only gynecological but also orthopedic, urological, and neurological, must be ruled out, and this can be both time-consuming and expensive. When such a diagnosis is established the results of therapy depend on several things—the duration and degree of the fixation, the etiology of the mental state, and the ability of the investigator. These patients not uncommonly will complain of being "tired all over," or of extreme nervousness and tension. Sargent⁴ recently pointed this out, along with the fact that back pain due to organic disease is often prolonged due to psychogenic causes. By keeping this possibility in mind, and by asking for psychiatric help when it seems indicated, we can relieve many of these chronic invalids who otherwise would remain a source of concern, not only to themselves and their families, but also to their physicians.

SUMMARY

It is obvious from what has been said that the association between the symptom of back pain and actual pelvic pathology is difficult to evaluate. This very fact makes for unsatisfactory therapy in many instances. By obtaining a careful history and by doing a complete physical examination—not simply limiting oneself to a pelvic examination alone—one can improve his clinical results considerably. It is generally recognized that abnormalities of position of the pelvic organs very rarely will give rise to backache. If the pelvic pathology is such that congestion or edema of the tissues has occurred, or if adhesions within the pelvis are present, there is more apt to be a cause-and-effect relationship than if these conditions are lacking. Even so, one should not overlook the possibility of an associated orthopedic, urological, or neurological condition which might be the real cause for the patient's complaint. Hence, a guarded prognosis will result in fewer disappointments, not only for the patient, but also for the doctor.

QUESTIONS AND ANSWERS

CHAIRMAN BOST: "Dr. King, what is your treatment of endometriosis in the young child-bearing woman?"

DR. KING: This is hardly the place to take up what can be a very complex problem. There are several factors that must always be considered: first, that although we know that complete removal of the ovaries will promptly stop the progression of the endometriosis, we are extremely reluctant to do this procedure in a young woman; secondly, although her chances of a pregnancy are definitely decreased, we appreciate the fact that if she should become pregnant this may result in a marked improvement because the prolonged period of amenorrhea gives nature a chance to heal over some of the endometriotic areas in the pelvis. A third factor that always colors the picture is an estimation of the extent of the process and the degree of disability that the patient is having.

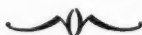
Surgical approach always presents the problem of trying to conserve as much ovarian tissue as possible and yet removing enough to control the endometriosis. Isolated areas

of endometriosis on the pelvic peritoneum may many times be cauterized with gratifying results.

If the symptoms again become severe after surgery has been tried we sometimes make use of sterilizing doses of deep x-ray therapy rather than subject the patient to another laparotomy. Recently, we have been using more and more testosterone for the medical treatment of these patients, and it is amazing how many times these patients will obtain complete symptomatic relief and definite regression of the endometriosis with this therapy.

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Pyloric Stenosis Not a Disease of "First-Born"

G. D. DELPRAT, M.D., and OTTO PFLUEGER, M.D., *San Francisco*

IN practically every article on Congenital Pyloric Stenosis the reader will find in about the second paragraph under the heading of "Incidence" the statement, "Pyloric stenosis is a disease of the 'first-born' male," or "It is a disease of the 'first-born'." For example Ladd, Ware and Pickett writing in the *Journal of the American Medical Association*, June 22, 1946, page 647, make the statement "Pyloric stenosis is reported to occur more frequently in the first-born of a family, averaging 50 per cent to 60 per cent of the cases in most series. Our own figures bear this out, as our patients represented first births in approximately 55 per cent of the cases."

Similar statements could be extracted from many articles, but the foregoing is the most recent. After careful study of a personal series of 146 patients, this point seemed worth investigating. In our patients, insofar as information is available from the records, the following figures are derived: first born, 64.6 per cent; second born, 18.2 per cent; third born, 13.6 per cent; fourth born, 3.5 per cent.

From these figures, consequently, one would be justified in drawing the conclusion that the disease was certainly most prevalent among the first-born. However, is it correct? Actually it is not!

In "Recent Social Trends" Volume 1, page 661, et seq., published by the President's (Hoover) Research Committee in 1933, the average American family had 1.01 to 2 children. In the United States Department of Commerce report, Series Ca-3, No. 3, page 19, of August 1944 of the San Francisco Bay area, which refers to children under ten years of age, it is found that the ratio of first-born to second-born to third-born is as 94:50:18. In the Los Angeles area the figures are similar. We are indebted to Doctor

C. C. Berwick, of the Metropolitan Life Insurance Company for these figures.

What do these figures mean? They mean that the average American family with children has each about 1½ children. This means that two families have 3 children, and that the incidence of "first-born" children in these two families is 66 per cent, or two out of three. If one were to belabor this point to the second-born, third-born and fourth child, a corresponding decrease would be obtained. The figure 66 per cent is in striking agreement with our figure of 64.6 per cent. It must be remembered that by and large 50 per cent of children are boys. Our series shows that the disease, boys:girls, is as 5:1. Therefore every sixth child born should be disregarded, as being a girl, and consequently not as susceptible to this disease. The pertinent fact remains however, that it is the size of the family that determines the prevalence of pyloric stenosis among the first-born. By the same argument, if one were to analyze the incidence of acute appendicitis, one would probably find that it affected some 60 per cent of the first-born, 18 per cent of second-born, etc., just because that is the ratio in which these individuals occur "free in nature." There is, therefore, no evidence at all to support the statement that pyloric stenosis is a "disease of the first-born."

The disease seems to be quite sporadic in its occurrence. We have had families of four children, with three involved, and these three were not three consecutive children. We have seen identical twins both affected, and we have seen identical twins in which only one was affected. We have seen another family in which the condition developed in several generations.

St. Luke's Hospital.

GRANULOMA INGUINALE

DAVID FROST, M.D., M.P.H., and BERNARD F. RYAN, M.D., *Oakland*

THE increase in the negro population in California has been accompanied by a greater incidence of granuloma inguinale, a disease which heretofore had been considered a medical rarity in this area. Since most medical texts stress the inguinal manifestations of this disease rather than the earlier genital lesions, many cases have not been recognized promptly or have been confused with other venereal diseases.

Granuloma inguinale became a reportable disease in California in 1938. A review of Table 1 reveals that there has been a steady increase in the number of reported cases since that year. Eight cases, all negroes, were seen at the Oakland City Clinic in a period of six months. With the exception of one case, all of these patients presented lesions confined to the genitalia alone.

TABLE 1.—*Civilian and Military Cases of Granuloma Inguinale Reported in California for the Years 1938 Through 1945*

	California	
	Civilian	Military
1938.....	—	—
1939.....	3	—
1940.....	16	—
1941.....	29	1
1942.....	22	8
1943.....	22	12
1944.....	23	8
1945.....	43	17

NOTE: Granuloma inguinale was not reportable before 1938.
SOURCE: Morbidity Report Cards: January 1939 through 1945, California State Department of Public Health.

Although granuloma inguinale is a disease found primarily among negroes in the United States, about ten per cent of the cases reported in the past occurred among members of the white race. The accepted etiological agent is the Donovan body. This organism is now considered to be bacterial in nature rather than protozoan as had been believed heretofore.

The disease usually begins with a vesicle, papule, or nodule on the preputial orifice, the labia minora, or the vaginal wall. The surface of the original lesion becomes excoriated or eroded leaving an ulcer with a red beefy granular base. The margins are sharply defined, and in most instances, everted. The lesion bleeds easily upon trauma, such as would occur while obtaining a specimen for darkfield examination. The original lesion is usually followed by one or more "daughter lesions" which may coalesce to



Figure 1.—Donovan bodies within cytoplasm of monocyte X117.

form extensive ulcerative processes. There are usually no premonitory symptoms or constitutional upsets.

One of the important characteristics which is of great assistance in the differential diagnosis of lesions on the external genitalia, is that of the great chronicity of the lesions in granuloma inguinale. Many patients give a history of the spontaneous disappearance of the original lesions with a subsequent recurrence. It is not uncommon, however, to have a patient state that the granulating lesion or lesions have been present for many months, without progression or recession.

Most textbooks describe the inguinal lesions adequately but it must be stressed that these are relatively late manifestations of granuloma inguinale and not the early lesions. It has been our experience that although the disease is easily recognized by most physicians when it has extended to the inguinal region, many do not associate genital lesions with granuloma inguinale.

Unless syphilis complicates granuloma inguinale, the serological tests for syphilis are negative. The Ito and the Frei skin tests are also negative unless the patient has or has had chancroidal disease or lympho-granuloma venereum in the past.

From the Division of Preventable Diseases, Department of Public Health, Oakland, California.

The diagnosis depends on the demonstration of the pathognomonic Donovan bodies in spreads which are prepared by crushing curetted material from the lesions between glass slides. The Donovan body, which can be stained with Wright's or Giemsa stains, may be found extracellularly or within the cytoplasm of the large monocytes. These bodies look like a closed safety pin due to their elongated ovoid shape and intense bipolar staining reaction. (Figure 1.) Once seen they can hardly be mistaken in future examinations.

The disease usually responds favorably to anti-mony compounds. Fuadin is considered to be the

drug of choice.* Sulfonamides and penicillin do not affect the progression of the disease.

SUMMARY

The incidence of granuloma inguinale has been increasing in California in recent years. Textbooks fail to stress the initial genital lesions hence leading to a great delay in the diagnosis. The disease is exceedingly chronic and responds favorably to anti-mony compounds. Fuadin is considered to be the drug of choice in treating the disease.

* Since this article was submitted for publication, Greenblatt et al reported favorable results from the treatment of granuloma inguinale with streptomycin in *J. Ven. Dis. Inform.*, 28:183-189, Sept., 1947.



The Family Physician and Medical Education

H. E. THELANDER, M.D., *San Francisco*

A MEDICAL educator expressed a need by saying, "What we should have is a pediatrician for adults." The same thought was implied in a newspaper carrying a headline on "aged orphans." The present resurgence of interest in the general practice of medicine reflects the same thought. In other words, the disappearance of the old family physician is being felt.

Viewed not economically but basically, individuals and families need a health and welfare counselor. In the few areas where he is located and for the small per cent of families that he reaches, the pediatrician serves as such a counselor. He not only takes care of the sick, but he guides the health of the well, he does preventive work, he counsels on the mental and emotional development, and he advises the family on medical aid and consultants. But only the large centers have pediatricians and in these areas pediatricians serve only a part of even the childhood population—thus the comment on the need of a pediatrician for adults.

How this need is to be met is a question which concerns medical education, the health of the Nation, and the survival of the private practice of medicine. Medical education in this Nation has made extremely rapid strides, but as Allen has pointed out in "Medical Education and the Changing Order," time should be given now to evaluation of what has been learned and the practical application of this knowledge for the good of all. Medical education has developed along longitudinal lines in that it has been departmentalized into medicine, surgery, obstetrics, and pediatrics and these in turn into subdivisions. The trend has led to extreme specialization. Those students who have not wished to pursue a specialty have been given scant attention, which in itself casts

some aspersions on the group interested in general practice.

There is another way to look upon medical education, namely in cross-section. From this viewpoint medical schools should furnish the Nation with (1) medical teachers, to continue the educational process, (2) research workers, also an essential part of a progressive health program, (3) specialists as heretofore, (4) public health personnel, a field unique in itself, and (5) physicians trained in the science and art of practice. It should not be extremely difficult to determine approximately the number of physicians needed in each group and their percentage of the whole. This knowledge should be part of the information given students in order that both faculty and students, during the undergraduate training, could choose and select intelligently and according to fitness the best material for each field.

The training in the science and art of practice, at present a largely neglected part of medical education, should be developed along the lines of present pediatric training adapted to all age periods. The family physician should be well trained, but he should know his own limitations, and he should have access to continuation studies. The medical or technical part of his training should include internal medicine, pediatrics and obstetrics. Surgery at first should be limited to minor problems and extended in its practice only gradually, as is now done in pediatrics. Most pediatricians do little surgery, limiting themselves to repair of minor cuts and bruises, lesser degree burns, etc.; a few have taken surgical training and extended this to tonsillectomies, fractures and so on, depending on their qualifications by training. It certainly should be expected that many physicians in general practice would desire to extend their

surgical experience, or desire to specialize. In fact it would seem highly desirable that specialists should come largely from those who have had a background of a few years of general practice.

Limitation of practice means, however, that there must be an established and easily accessible route of reference to specialists of problems beyond the practitioners' training. The recent war has revealed our ability to organize specialty centers and provide transportation to them even from remote areas of the world. This experience should be utilized in civilian life. Every geographical area should have its medical center equipped to do diagnostic and therapeutic work for the surrounding communities. The number of centers, as well as the type of transportation indicated, is dependent upon the population, terrain, climate and similar factors, problems that differ markedly in various parts of the United States and need to be solved on a local or regional basis. Judging by a pediatric practice, the number of patients requiring reference to specialists outside the field constitutes a relatively small percentage. The completion of the Study of Child Health Services now in progress should reveal at least approximately what this figure is. In adult or general practice it should be somewhat comparable.

In a field as vast as medicine, it is impossible to be an authority or specialist in all branches, and recognition of limitations in general practice is essential to safe practice. The greatest weakness in our present system is the prevalent attitude that the license to practice medicine and surgery when applied to general practice gives the individual, regardless of lack of training, a right to do everything. Specialists have the same license but refrain from using it.

CONTINUATION STUDIES

The other basic need of the family physician is access to continuation studies. Only a few medical schools or centers have established a relationship with the practicing physicians of the surrounding community which makes the acquisition of new knowledge and new techniques a pleasure and aim. A good and mutually respected relationship between medical educators and practicing physicians is the crux of the entire problem and this relationship can never be acquired under conditions of antagonism or disrespect. The advancements in medicine are so rapid that there must be established means for keeping abreast of the newer knowledge by those not immediately associated with research centers. Medical literature furnishes one valuable means, but the written word becomes difficult to evaluate by one's self. So-called refresher or continuation courses at a medical school offer the best opportunity, if properly organized and planned, to discuss and evaluate newer knowledge. Courses organized for practicing physicians should be conducted apart from the undergraduate work, and with a carefully selected faculty. Full-time teachers of undergraduates are prone to adopt a method not suitable for seasoned practitioners. Volunteer clinical instructors are less apt to talk down to a class or group of practicing physicians.

Diagnostic problems encountered at a local level can be excellent teaching material if the medical center cooperates with the referring physician by presenting him with a complete report on the case and referring the patient back to the local physician for continuation of observation and therapy. Unfortunately this is often not done and the local physician feels that by referring the patient, he completely loses contact with him. This, in turn, in the eyes of the community reflects on the local physician's ability and destroys confidence in him. It might be added that if referred cases are made the subject of medical papers by a university faculty member or group, credit given to the referring physician would seem courteous (if not a medical *Emily Post* must) and would enhance good relationship.

Visiting speakers to local medical societies or discussion groups help in continuation study, and this purpose is similarly served (and the community welfare aided) by cooperation with a visiting research worker or epidemiologist in some community epidemiological problem.

The art of practice is probably a little more difficult to teach than the science, but instruction along some fundamental lines should greatly aid the practitioner. Some training in psychiatry and psychology is important and the tendency to incorporate much of this instruction into the other branches of science and teach it at the bedside is a valuable training, already noticeable in the attitudes of hospital house staffs.

TRAINING IN COOPERATION

A second important training should be in teamwork. Unfortunately doctors have been inadvertently taught to be and are considered to be individualists, even *prima donnas*. If the medical school is the parent to whom the physician returns for help and guidance, then the medical confreres in the community should be brothers. The integrity of the individual physician cannot be maintained and the welfare and health of the community cannot be forwarded if extreme individualism is pursued. Failures of teamwork have resulted in small private hospitals or nursing homes barred to other physicians in the community and resistant to the establishment of a well equipped community hospital. Lack of teamwork means the failure to maintain medical societies, medical rounds, clinical conferences and discussion groups, all of which contribute so much to the advancement of knowledge in the science of disease. This lack of cooperation between doctors of a community is a grave reflection on the medical profession and the source of serious criticism by lay people.

PUBLIC AND PRIVATE AGENCIES

Finally, the art of practice should train the physician to cooperate with the public and private agencies in a community. The pediatricians, although perhaps inadequately, have set an example. It is practically impossible satisfactorily to practice pediatrics and not soon learn that the help of other agencies is needed. The public health system, if properly func-

tioning, removes from the physician the burden of worrying about water and milk supply. Public health is concerned with housing, accidents, pest control, statistics, school buildings and innumerable matters of which the practicing physician is not even aware but which are essential to health and welfare. Sometimes public health officers clash with private practice in attempting too much to direct the patient, but the very clash helps to keep both parties functioning at their best.

The state and its institutions are needed for the custodial care of the feeble minded and other unremediable problems. The private agencies are sought for help in convalescent care, placement of orphans, and in many other ways. Most of these problems or similar ones belong to all age groups, for dependency is not entirely a matter of age. Geriatrics can learn from pediatrics that rehabilitation, occupational therapy, and guidance are as much a necessity in the home for aged as in an institution for children. Salvaging of old age is an exceedingly interesting project and one of increasing importance. Talent and experience are sometimes shelved by an artificial retirement age, which alone is a challenge. The most interesting and gratifying part of the practice of medicine can be the counselling of individuals, families and agencies in a community. In this cooperative way the general level of health can best be raised. This, as well as the care of the sick, was the former function of the family physician.

If the medical educators and the practicing physicians will again appreciate the importance of the family physicians, the men and women who are the terminal sensory organs in the health system, the private practice of medicine will not be jeopardized. And, for continued progress of medicine it must not be jeopardized.

Only a very few know the full danger to our medical progress of a completely socialized health program. On paper and in theory it looks and sounds ideal, but in experience, in medicine as in any other field, complete (though dependent) security, regular hours, lack of personal responsibility, lack of stimulation gradually undermines even the most conscientious physician and the result is lack of courtesy to the patient, delay in care, shifting of responsibility, with the end always stagnation and retrogression. It

must be recognized that doctors are fallible, that when effort is no longer necessary, progress ceases. Competition, mutual criticism, sparring and a certain slight sense of insecurity are always a part of private practice and are the necessary lash that fallible human nature needs in its climb toward a better civilization. This is no different in medicine than in government. Totalitarianism in either is objectionable for the same reason. A two-party system, public and private, is as necessary to better medicine as it is to better government.

The Western States should recognize that the problem in the sparsely populated areas is somewhat different than it is in congested small states of the East. Even if groups of specialists might be considered there, it would be impossible to meet the Western needs in that same way. Distances make it imperative that individuals do a high percentage of the work in outlying small communities, but it is equally imperative to good medicine that transportation and diagnostic and therapeutic centers be so established that rapid transfer of patients can be accomplished when indicated.

SUMMARY

In order to establish a program of health that can eventually reach all the people, the general practitioner is an essential member. Medical education must recognize the importance of his function in the overall program and design his training to include not only the science but the art of practice. It is important that the general practitioner be liberally trained in medicine, pediatrics, obstetrics and minor surgery; that he be trained to recognize his limitations; that he have ready available means of referring cases beyond his training; and that he have access to continuation courses to keep abreast of the new developments in medicine.

The physician should have adequate training in psychology and sociology that his management of medical problems should not fall short of comprehensive advice to the patient in all the things which disturb his welfare. He should be skilled in teamwork in order to work effectively both with his colleagues and with public and private agencies concerned with the patient's welfare.

384 Post Street.



Psychoneurosis Based on Organic Ailment Cured by Electric Shock Therapy

D. R. SEARS, M.D., *San Mateo*

ALTHOUGH the efficacy of electric shock treatment for psychoneurosis is still in dispute, most psychiatrists now recognize extreme hypochondriasis as a frequent manifestation of an agitated depression which responds well to electric shock therapy. A more recent aspect of this form of therapy is in application of it for symptomatic relief in depressions apparently arising from organic disability.

The author's experience indicates that electric shock treatments are effective not only in overcoming depression and other emotional reaction to a physical illness, but sometimes also appear to alleviate apparently real physical symptoms. Moreover, in some cases psychoneurosis which has interfered with physical treatment has been overcome.

Because electric shock treatment is seldom tried where there is organic disability to account for a patient's symptoms, four case histories in which satisfactory results were obtained in these conditions have been selected for review.

CASE NO. 1: A 55-year-old cachectic man entered the hospital with a complaint of inability to swallow and fear of cancer. He had had three previous complete negative gastro-intestinal x-ray series, one of which was at a university hospital.

A diagnosis of psychoneurosis was made by all doctors who had studied him previously, despite the fact that the patient had been a successful real estate and insurance broker without neurotic tendencies up until two years previously.

The family history is interesting in that two sisters died of the same complaints. One refused to eat and starved to death. The patient's wife was not certain of the circumstances of the death of the other sister, although she said they were somewhat similar. The wife stated all the members of the patient's family were nervous.

Physical examination showed the usual signs of malnutrition without other gross evidence of physical abnormality. A written report from the referring doctor and copies of the last gastro-intestinal series were received.

Blood count, urinalysis, and Wassermann at the time of entrance into the hospital all were within normal limits except for moderate anemia.

The patient refused to eat, stating that he could not swallow and that he vomited everything he tried to take orally. He was given moderate sedation and was tube fed without difficulty, and although he attempted to regurgitate the formula, it was retained satisfactorily. When his stomach was filled with one quart of formula feeding, he complained of indescribable pains in his abdomen, but when allowed to eat and regurgitate his food as he had been doing before his entry, there were no complaints of abdominal pain.

The patient was begun on electric shock treatments three times a week. After the fourth treatment, he was eating and

free of complaints. He gained 12 pounds in weight in the first week. Treatments were continued until the patient had had eight treatments. He then stated he felt completely well and wished to return home, feeling that he could return to work within a week or two.

That night, the patient vomited a large quantity of undigested blood. Esophagoscopy revealed a large fungating mass about half way down the esophagus. A diagnosis of inoperable carcinoma was made, treatments were discontinued, and the patient was discharged to his home in a cheerful frame of mind. He felt he was on the road to recovery.

The following week he did not remember the hemoptysis nor the esophagoscopy. He remained in a cheerful frame of mind, free of complaints, and continued to eat well until the time of his death from uncontrollable hemorrhage three months after his discharge from the hospital.

This case illustrated a reactive depression with psychoneurotic symptoms associated with cancer of the esophagus. The depression and psychoneurotic symptoms were cured by electric shock treatment, making the remaining few months of the patient's life happy ones.

CASE NO. 2: A 53-year-old, slightly obese, extremely depressed white female presented depression of an agitated variety.

The patient had extreme hypochondriacal complaints of all kinds. She had very definite hypertrophic arthritis which was active. Both knees were swollen, and there was permanent deformity of the joints as well as active inflammatory processes. The blood count, urinalysis and Wassermann were normal and the sedimentation rate was 31 mm. in one hour.

She walked with two crutches and complained of inability to get around at all. When allowed to do so, she stayed in bed and complained of pains everywhere from her head to her toes. Arthritis had been present for eight years previous to entry into the sanitarium, and for this treatment had been carried out by an orthopedist. The depression had become so severe, however, that the orthopedist no longer could treat her.

Eight electric shock treatments produced complete remission. She was cheerful and the arthritis was apparently so much improved that she could get around with one cane, though the deformity of the knee joints was such that it was not possible to straighten either joint beyond 170 degrees.

The question of course arises as to whether the depression was a coincidental, concomitant illness, or was caused primarily by the eight years of illness. In either case, experience with this patient seems to indicate that electric shock treatments will overcome the apparently real physical symptoms as well as the emotional reaction to an illness and that they can be of benefit when a depression exists, even though there is a severe physical ailment which appears to be the cause of the depression.

CASE NO. 3: A 54-year-old, slender, depressed white female spent three months in a sanitarium under expectant care because she suffered from severe hypertension (systolic pressure 260 mm. mercury) and had had one kidney removed because of a cystic condition. About the time the

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kidney was removed, hemorrhoidectomy also was performed. After the kidney operation, she was sure a sponge had been left inside.

Interview indicated that she had always been a woman of limited inner resources. She had lived in a small community, had one daughter and had been happy caring for her and keeping her house. She had always been of a fearful and worrying type. Her child recently had left home, married and had a child of her own. The patient had moved to a large city and had not made new friends readily.

In this case the patient, a woman with hypertension, suffered from typical agitated depression which seemed to be partially reactive in nature. Physical findings were negative. Laboratory findings were not contributory. The patient was given 15 electric shock treatments and had a complete remission. The treatments not only relieved her symptoms but a marked lowering of blood pressure ensued. Her blood pressure dropped to 150 mm. systolic, and 100 mm. diastolic.

She was discharged, but within about three weeks began to slip back and have more physical complaints. She complained of headaches, of pain in her eyes, of "pains around the ovaries"—a different complaint at every visit. She was treated expectantly for three or four months but gradually relapsed, although at no time did she become as ill as she was prior to treatment.

Electric shock treatments were recommended on an out-patient basis, and after six treatments complete remission again resulted. Four more treatments were given at weekly intervals and at an examination about six months after the last shock treatment, the patient was still symptom free. The blood pressure continued around 150/100 mm. but no longer did pain in the head and body concern her. She was contented, was doing her own house work and seemed completely well.

Though this third case may appear simply to be an involutional melancholia with hypertension, the history of the case strongly suggests prolonged worry over the throbbing in her head caused by her hypertension and the increase in this symptom to the point that it became an unendurable pain.

CASE No. 4: This patient, a 34-year-old, tall, healthy appearing young man, suffered from cyclical depressions at two to four-year intervals. His first severe depression occurred eight years previously. At that time he was living in New York and there he underwent psychoanalysis for two years. The depression at that time subsided in about four months. At the end of the two-year analysis, he suffered his second severe depression which lasted between four and six months. Two years later (May, 1942) he was work-

ing in San Francisco for an advertising company and again became depressed. After about five months, he was extremely depressed and suicidal. He took three electric shock treatments at Stanford Hospital and had a complete remission which lasted until the onset of another depression early in 1945.

About two years after his last previous depression (April, 1944) the patient underwent thyroidectomy. The thyroid removed was found to be malignant. Several metastatic cervical nodes were removed at the same time. About six months later, he again had adenopathy in the cervical region, and received x-ray therapy to the extent that he felt definitely weakened for about six months. He had repeated check-ups every three months and to date (January, 1948) there has been no noticeable increase in any of the cervical nodes or any other apparent metastatic process.

The patient was not supposed to know that there was any relationship between the difficulty with the nodes in his neck and his previous malignancy. But his wife knew, and since she was extremely emotional and apprehensive, it seemed likely that there was a definite relationship between the most recent depression and knowledge or suspicion of his serious physical condition. In this latest depression three electric shock treatments were administered, and the patient again had a complete remission and returned to his slightly hypomanic, very active personality.

These four cases were selected for presentation here because although they are quite different in nature, they all showed depression or neurotic symptoms which apparently occurred largely as a result of organic disease. In dealing with these and other similar cases, I have found that, although the patients had not been given shock therapy in other sanatoria because an organic ailment was discovered, they benefited from the course of shock treatments, even though the organic disability continued.

CONCLUSIONS

1. Depression and psychoneurotic symptoms may be remitted by electric shock treatments.
2. Existence of organic disabilities to account for symptoms are not contra-indicative to electric shock therapy for emotional reaction to physical illness.
3. Where psychoneurosis arising out of organic illness becomes a barrier to physical treatment, electric shock treatment may be effective in returning a patient to a receptive attitude toward physical treatment.

25 Twenty-fifth Avenue.



Perinephric Abscess Secondary to Renal Infection

ALBERT M. MEADS, M.D., *Oakland*

A PERINEPHRIC abscess has been defined as a "Suppurative inflammatory lesion of the perinephrium, that is the fatty bed surrounding the kidney in the lumbar gutter."⁵ This definition places all perinephric abscesses in one group without regard to their etiology or behavior. Surgically speaking, however, two types which are fairly well defined can be recognized as shown by the history, the clinical course and the operative findings. These two are in general quite distinct and for the want of better terms may be classified under primary abscesses and secondary abscesses.

The primary or classical perinephric abscess is the one most commonly encountered, having an acute history and a clinical course which makes its diagnosis usually inevitable provided the examiner keeps it in mind. In contrast, the secondary perinephric abscess is preceded by a chronic infected kidney and has its signs and symptoms often overshadowed or masked by the original renal disease. The line of demarcation between primary and secondary perinephric abscess is not always clearly defined but in general this classification will cover the majority of cases, surgically speaking.

The primary abscess originates from a distant focus, such as a furuncle or infected wound. The infecting organism is blood borne from the original focus to the fatty capsule of the kidney. A distinct period of time elapses between the original infection and the appearance of the perinephric symptoms. The onset is fairly sudden, signs appearing in the region of a previously normal kidney, without as a rule history of a past infection. The course is acute and resembles that of an abscess in any other part of the body, with chills, fever, moderate leukocytosis and local tenderness. Cystoscopic findings are generally negative and significant findings in the urine are limited to a few pus cells and a positive culture of some type of coccus. Pyelograms are negative although the kidney may be fixed and the psoas shadow obliterated. The diagnosis of primary perinephric abscess should be made in a reasonable time after careful study.

The secondary perinephric abscess in contrast to the primary abscess is chronic and follows an infective process in the kidney itself. Its onset is insidious and often unsuspected because of active symptoms due to the original kidney lesion. The history is indefinite as far as the abscess is concerned, but the presence of long standing renal disease is almost invariably noted in the history. Often the patient has had previous urological treatment, the nature of the kidney lesion being known. The abscess proceeds slowly, often for months, and is frequently undiagnosed until surgical exploration. At operation the abscess is found associated with and secondary

to the chronic infected kidney lesion whose symptoms have overshadowed those of the abscess.

The classification primary abscess, and secondary abscess, is open to debate. Some authors deny that an abscess can develop in the renal fat unassociated with previous infection in the renal cortex. Beer¹ in 1936, called attention to multiple small coccal abscesses in the cortex of the kidney found at operation for perinephric abscess. Granted that small cortical abscesses may be found under the renal capsule, Beer's conclusions are unconvincing as to which came first, the large perinephric abscess, or the small corticle abscesses which were only discovered when the capsule was stripped. Young⁷ recognized primary perinephric abscesses by saying, "In these cases one deals with a hematogenous infection arising here [perinephric fat] just as it does in an abscess or cellulitis elsewhere in the body."

Regardless of what paths the infecting organism travels from its original focus to the perinephric fat, surgically one of two distinct situations will be encountered: (1) a fairly acute primary abscess which lies in the fatty tissue apparently independent of the kidney proper and which usually heals promptly with simple drainage, or (2) secondary abscess, chronic in character which originates unquestionably from an infected kidney involving the kidney and surrounding tissue in a chronically infected mass and which at operation usually requires nephrectomy as well as drainage.

The following two cases emphasize some of the points brought out in this paper concerning secondary perinephric abscess. Both cases have histories of renal disease for years, both cases had unsuspected perinephric abscesses that had been present for months until large palpable masses could be felt in the upper abdomen. In both cases the symptoms of the active kidney lesion masked those of the abscess delaying the diagnosis of the latter several months.

CASE REPORT

CASE 1. A woman, aged 36 years, was first seen September 9, 1944, because of pain in the left abdomen and a swelling in the left axillary line over the 8th, 9th and 10th ribs.

Past History: Following an attack of scarlet fever at the age of seven, the patient developed "kidney trouble" which was associated with chills, fever, pains in the left abdomen and later the passage of thick, purulent urine followed by recovery. Similar attacks lasting about four weeks, occurred over several years at intervals, terminating always with the passage of a large amount of purulent urine. There was always pain in the left abdomen during the attacks and the general term of "kidney trouble" given as the diagnosis.

Present History: In April, 1944, the patient developed another typical attack with the chills, fever and pain in the left abdomen and back. However, instead of terminating as usual after four or five weeks, fever continued up to

the time the patient was seen the following September. A week before reporting she noticed a tender and slowly progressing swelling on the left side of the chest in the axillary line. At times the pain in that area was quite acute. There was constant pain in the left side of the abdomen and back, at times radiating to the groin. The patient lost 22 pounds in five months, and weighed 96 pounds at the time of admission.

Examination: The patient was a thin anemic woman with a temperature of 103°F. The swelling in the left axillary line was about 10 cm. in diameter, deep seated, slightly fluctuant and tender. There was a mass in the left flank which was fixed and tender. The urine showed a few pus cells and bacteria. Vaginal examination was negative. The lungs were clear and a plain x-ray film showed nothing abnormal above the diaphragm although the dome of the diaphragm on the left seemed somewhat elevated.

Under local anesthesia an incision was made over the swelling in the axillary line, parallel to the ribs, and about 30 cc. of odorless purulent fluid was evacuated. October 6 the patient was cystoscoped. The catheter on the left met an impassable obstruction in the lower third of the ureter and the kidney on that side was functionless. Urograms on the right side were all normal. On the left, however, an elongated stricture in the lower third of the ureter was noted obstructing the catheter. The ureter above that point was greatly dilated and a hydronephric pelvis was seen. The iodide solution was seen to extravasate into the perirenal tissue at the upper pole of the kidney and to pass up under the ribs to the site of the swelling in the left axillary line. The irregular abscess thus demonstrated was noted to communicate directly with the infected kidney and with the swelling noticed by the patient on the left chest wall (Figure 1). An interesting sidelight in this case was the blood count and the post operative course. (See Table 1.) The leukocyte count at the onset was 32,300, of which 82 per cent were neutrophils, the count subsequently dropped to 21,000 immediately after the operation, but thereafter it steadily increased to 124,250 with 98 per cent neutrophils shortly before death. A hard mass developed in the epigastrium which suggested an accumulation of pus when taken into consideration with the white count, but when

exposed under local anesthesia it proved to be a solid tumor. At autopsy extensive metastatic carcinoma was found involving the liver and other organs. Re-examination of the kidney removed at operation showed in addition to the pyonephrosis an infiltrated area which proved to be adenocarcinoma. The unusual blood picture was an example of "leukemoid reaction."^{2, 3, 4, 6} Such blood changes have been reported accompanying carcinoma of various organs, including the liver, but none as far as we have found have

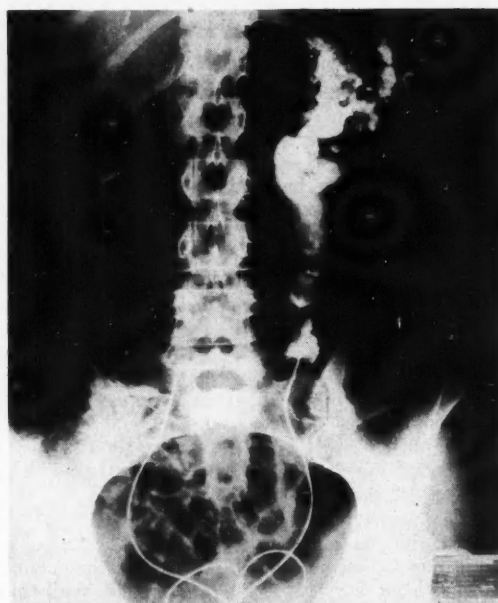


Figure 1, Case 1.—Retrograde urogram showing stricture of left ureter opposite 4th lumbar vertebra, hydroureter and hydronephrosis with abscess extending from upper pole of left kidney through chest wall.

TABLE 1, CASE 1.—Blood Studies Showing Leukemoid Reaction.

Date	Hg.	R.B.C.	W.B.C.	N.
10-20	10.5 62	4,000,000	32,300	82
11-9	9.5 55	4,290,000	21,000	89
11-13	93.55	3,340,000	23,000	90
11-24	12.1 75	4,710,000	40,700	
12-6			81,400	96
12-11	9.4 55	3,720,000	62,100	92
12-19	10.5 62	3,520,000	72,800	96
12-25	2.7 52	3,230,000	110,000	97
12-28	8 47	2,190,000	124,250	98½

Hg.—Hemoglobin in Gm. and per cent of normal.
RBC.—Erythrocytes.
WBC.—Leukocytes.
N.—Neutrophils.

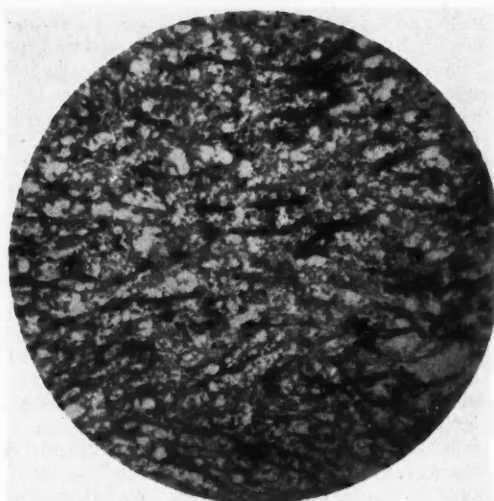


Figure 2, Case 1.—Section of kidney tumor showing large pale staining cells.

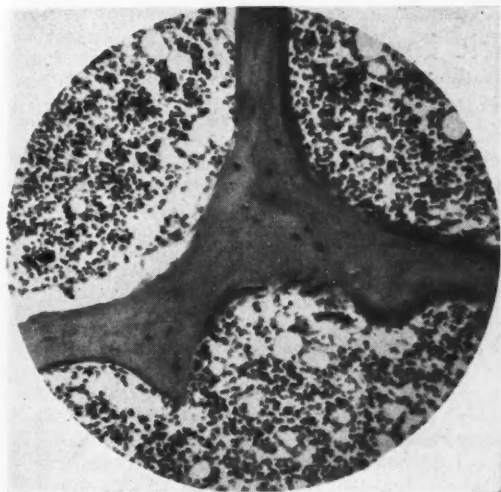


Figure 3, Case 1.—Bone marrow showing marked myeloid hyperplasia and no metastasis.

been reported with the primary carcinoma in the kidney. (Figure 2 and Figure 3.)

CASE 2. History: A man, aged 62 years, reported that in 1929 pus was discovered in the urine during an insurance examination. Turbid urine had been noted for at least a year before this time. Pus continued to be present in the urine for about 14 years when it suddenly disappeared. Three years prior to examination a tumor was discovered in the left side of the abdomen, but operation was refused. In May 1944 a biopsy was taken from the tumor through an incision in the left flank. The report showed no malignancy. Subsequently the incision discharged thin purulent fluid necessitating constant dressings.

Examination: A very large fixed, tender mass was palpated filling the whole left abdomen from the thorax to below the crest of the ilium and extending over the midline. Cystoscopic study revealed a normal right kidney, and a functionless left kidney with the left ureter obliterated at a point about 5 cm. above the outlet. A plain x-ray film showed a large calculus in the region of the left kidney. (Figure 4.)

At operation in January 1945 the tissues were found matted together with no line of cleavage evident. As the kidney was approached a large perinephric abscess was opened adjacent to the lower pole. A lobulated distended kidney was freed with difficulty and when opened discharged thick, purulent fluid. The kidney fossa was surrounded by a mass of indurated tissue which made up the bulk of the palpated tumor. This mass extended downward into the pelvis and over the midline pushing the peritoneum and abdominal contents to the right. The infiltrated tissue was explored and no more free fluid found. Multiple drains were inserted after nephrectomy. Recovery has been slow but progressive.

CONCLUSIONS

Surgically, perinephric abscess may be classified under two heads, the *primary abscess* which arises

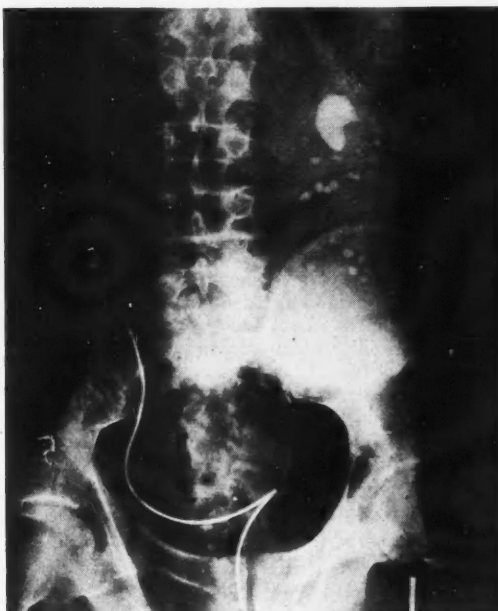


Figure 4, Case 2.—Showing multiple calculi in left kidney area with mass occupying whole of left abdomen.

from a distant focus and runs an acute course with no pre-existing renal disease, and the secondary abscess which is intimately associated with an already existing renal infection. The latter type often appears insidiously under cover of the original symptoms of renal disease which makes diagnosis of it difficult.

A careful study of the case history will usually assist in an earlier diagnosis in spite of the simultaneous existence of long standing renal symptoms.

Two cases of secondary perinephric abscess are presented which emphasize the points brought out in this paper.

251 MacArthur Boulevard.

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Benign and Malignant Prepyloric Lesions of the Stomach

GORDON KNIGHT SMITH, M.D., *Los Angeles*

THE difficulties in diagnosis between benign and malignant ulcerations of the stomach have been appreciated for many years. Recently cases of chronic gastritis simulating carcinoma have been reported. From the standpoint of the general surgeon, ulcerative lesions of the stomach have been considered as being potentially malignant, and subtotal gastric resection has been the treatment of choice. Since the curability of gastric carcinoma has been disappointingly low, it has been suggested that total gastrectomy replace subtotal gastrectomy in the treatment of this type of lesion.⁵ During the past four years considerable attention has been focused on the work of Dragstedt and others in the treatment of peptic ulcer by sectioning the vagus nerves either above or below the diaphragm.

During the early stages of this work, only those patients who showed marked excess of free hydrochloric acid, and an excessive amount of nocturnal secretion, were chosen for this procedure. Gradually vagotomy has come to replace subtotal gastric resection in the surgical treatment of peptic ulcer. In June 1946, Dragstedt² recommended that this procedure supplant subtotal resection in duodenal, gastrojejunal, and "proven" gastric ulcers. Elsewhere in the literature appear reports of patients with gastric ulcer treated by section of the vagus nerves.³ In December 1946, Dragstedt spoke in Los Angeles and made the statement that subtotal gastric resection in the treatment of peptic ulcer was to him of historical significance only. This concept is not completely in accord with that of many other surgeons. Vagotomy, combined with gastrojejunostomy when indicated, gives dramatic and may give permanent relief to patients suffering from duodenal, gastrojejunal, and selected gastric ulcers.

The problem of differentiating between benign and malignant lesions of the stomach is complex. Allen¹ in reviewing a series of cases found that 14 per cent of the patients treated as having benign gastric ulcer proved later to have carcinoma of the stomach. He observed that all of these patients responded well to conservative therapy, that the ulceration diminished in size, and that the surrounding area of gastritis disappeared. Palmer⁶ proved quite definitely the same fact, that malignant ulcers may heal and become covered by neoplastic mucosa, or by a layer of epithelium which is normal in appearance. As to the differential diagnosis Allen stated that helpful information was derived from an analysis of the location of the lesion, age of the patient, and the duration of symptoms. Gastric analysis, particularly as regards free acidity, and the size of the ulceration were not impressive. The type and radiation of pain, and the rate of healing under conservative therapy were valueless. Ten per cent of the lesions on the lesser curvature and of the pylorus

itself, and practically all ulcerations in the immediate two centimeters of stomach proximal to the pylorus proved to be malignant. An interesting fact obtained from Allen's series was that resections done on lesions thought clinically to be benign, and proven by the pathologist to be malignant, lead to an increase in five-year cures from 20 to 40 per cent over clinically malignant lesions.

Pre-operative examination of gastric lesions, including radiographic and gastroscopic studies, gastric analysis, and a careful history often fail to establish the diagnosis. In August 1946, Rennie⁷ reported several cases of antral gastritis and carcinoma. In one patient, at the primary operation, a rubbery induration and thickening of the antrum was found. Gastrotomy was performed and a clinical diagnosis of gastritis was made. The gastrotomy was closed, and nothing further was done. Several months later the patient returned with considerable gastric distress and pylorospasm. Laparotomy was again performed and the lesion appeared somewhat the same as before. Gastrotomy was done and it was found that the pylorus was narrowed and almost occluded by a ring of firm tissue. Biopsy of the pyloric ring was taken in two places and was reported as chronic inflammatory tissue. Posterior gastroenterostomy was performed and the gastrotomy closed. Report of paraffin sections showed an infiltrating adenocarcinoma of the pylorus.

The differential diagnosis between prepyloric ulcer, gastritis, and carcinoma cannot definitely be established with our present armamentarium. No single diagnostic procedure, nor the sum of all available, can definitely exclude the diagnosis of carcinoma. In view of the excellent results obtained in duodenal, and in some cases of gastric ulcer, by vagotomy, the surgeon is tempted to do this procedure, plus gastrojejunostomy if pyloric obstruction is present, in lesions of the stomach which are apparently benign. Delay in operation or conservative procedures may be beneficial to patients with benign lesions, but may likewise lead to tragic results if the lesion later proves to be malignant.

CASE REPORT

An Italian housewife, aged 51 years, was first seen on November 21, 1946. She was in good health until about two years previously, when following receipt of a letter from the War Department reporting that her son was missing in a flight over Germany, she began to have intermittent epigastric pain with some nausea and vomiting. This continued at intervals, first once a week and eventually daily. She saw several physicians who attributed her present illness to the fact that she was worrying about her son having been lost in action. One year later a cholecystogram was reported as negative. Epigastric pain continued and was usually relieved by warm milk. During the preceding few months vomiting occurred frequently, and for two weeks nausea was constant. Food or fluids could not be retained.

No history of hematemesis, tarry or clay colored stools, or icterus could be obtained and there had been no weight loss.

Physical examination revealed nothing significant. The value for hemoglobin was 13.8 gm.; leukocytes numbered 6,900. Gastric analysis with alcohol meal revealed no free hydrochloric acid on any of the specimens. There was a trace of occult blood in all specimens.

Radiological examination on December 2nd was reported as follows: "Two gastro-intestinal examinations were made of the stomach, one before and one after heavy sedation. Both of these studies showed a stiff, tubular antrum. The lesion seemed to extend from the pylorus proximally about an inch and a half. It suggests carcinoma of the annular or scirrhous type with marked stiffening and narrowing of the pyloric outlet. The patient carried a large gastric residue at five hours. Gall bladder dye study revealed normal function and no stones. Scout radiographs of the abdomen and gall bladder reveal nothing remarkable."

The patient was admitted to the Hospital of the Good Samaritan on December 14. Her stomach was aspirated and contained 1300 cc. of greenish liquid with no gross evidence of blood. She was placed on continuous gastric suction and fluid and electrolytes were replaced. On December 16 the abdomen was opened through a right paramedian incision. The stomach was small and there was a firm mass palpable on the gastric side of the pylorus which seemed to comprise the anterosuperior wall of the stomach. There was no definite crater palpable. The lesion was smooth and the serosa was not involved. The duodenum was smooth, and no ulcers were palpable or visible. There were numerous soft lymph nodes throughout the gastroduodenal and gastrophrenic omentums. The gall bladder was thin walled and compressible. The foramen of Winslow was patent. The remainder of the viscera were normal, including the liver which was small and contained no metastatic nodes. A frozen section of one of the lymph nodes of the mesentery was reported as benign. However, since the lesion was entirely on the gastric side of the pylorus, it was not felt safe to do a vagotomy as malignancy could not be excluded. A posterior Polya-Hofmeister subtotal gastric resection was done.

Examination of the resected stomach showed what appeared to be a shallow prepyloric ulcer, located on the lesser curvature toward the anterior wall with marked thickening and deformity of the adjacent pyloric ring which formed one portion of the ulcer. The distal one-third to one-half of the resected stomach, particularly along the lesser curvature, showed marked roughening and focal thickening of the mucosa. In some areas there was apparent atrophy. Impression at this time was that of a chronic prepyloric ulcer of the stomach and chronic gastritis.

Pathological Report: "Diagnosis (1) Chronic peptic prepyloric ulcer of the stomach; (2) Chronic gastritis; (3) Adenocarcinoma of stomach; (4) Adenocarcinoma, metastatic, regional lymph nodes. Comment: The malignancy appears to be arising in an area of pre-existing gastritis or perhaps healing gastric ulcer. There is no evidence in the sections of malignancy beyond the mucosa."

Postoperatively the patient developed partial retention, due apparently to edema at the stoma which responded to conservative therapy, and at the end of a week postoperatively she was tolerating food and fluids with no difficulty. Her wound healed by primary intention and she was discharged from the hospital on December 28.

COMMENT

In summary of this case the following facts stand out:

1. Symptoms of indigestion of over two years'

duration were very suggestive of peptic ulcer as the onset came following a psychic upset and there was relief of pain with food.

2. Gastric analysis showed an absence of free hydrochloric acid which is not uncommonly seen in individuals over 50 years of age, and in patients with peptic ulcer with either pyloric stenosis or gastritis.

3. X-ray evidence was that of carcinoma, but similar findings occur in cases of gastritis.

4. Biopsy of a regional lymph node showed inflammatory reaction only.

5. Operative findings including biopsy of a regional lymph node did not definitely establish the diagnosis.

In view of the present feeling toward surgical treatment of peptic ulcer, during surgery the question arose as to whether gastrotomy with biopsy and frozen section should be used to establish the diagnosis. It is probable that sections taken through the ulcer would have failed to establish the diagnosis of malignancy, and in view of the case reported by Rennie⁷ the futility of this procedure is evident.

It is factual that some surgeons are contemplating vagotomy in lieu of subtotal gastrectomy in cases of gastric ulcer. Jones⁴ stated that while he was operating on a case of gastric ulcer before a large group of surgeons, 80 per cent of them stated they thought that vagotomy alone should be done. The resected stomach from his case also proved to be malignant.

SUMMARY

The difficulty in diagnosis between benign and malignant lesions of the stomach has been discussed. The most frequent source of error is undoubtedly in lesions in the prepyloric area. Frequently an accurate diagnosis can be made only from paraffin blocks of the resected specimen. As pointed out radical surgery for carcinoma of the stomach is becoming more popular.

In view of these facts, vagus section or any other palliative procedure for prepyloric gastric lesions should be condemned. Although it may effect a cure in some cases of benign ulceration of the stomach, it may also lead to tragic consequences.

1136 West Sixth Street.

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Otological Diagnostic Clinics of California

W. D. CURRIER, M.D., *Pasadena*

IN 1943 the California State Legislature passed assembly bill No. 257 which provided authority and funds for the establishment of a Hearing Conservation Program in the Bureau of Maternal and Child Health of the State Department of Public Health. A head of this program was to be appointed whose title is Hearing Conservation Specialist. The person now serving in this capacity is Donald R. Caziarc.

Under auspices of the Bureau of Maternal and Child Health otologic diagnostic clinics are to be established in various communities in the state. These clinics are to be purely diagnostic. The physicians in charge are specially qualified and approved otologists. All children found by them to be in need of medical or surgical care are likewise referred to properly qualified and approved physicians. The case finding is done in schools by school nurses or audiometrists who are specially trained and who are approved for this work.

The success of an otological diagnostic clinic depends upon the preparatory work done by audiometrists, school nurses, and their assistants. If it were not for their methodical testing and screening, few cases of hearing defects among school children would be brought to medical attention at an early date. The otologist will naturally appreciate this valuable contribution, but he can do more; he can give encouragement and aid to these co-workers by praising their services so that they will be duly appreciated by parents and lay assistants. Thus, an enthusiastic spirit of cooperation can be developed, which will act as an incentive to all who participate in this work.

The standard by which children are referred to an otological diagnostic clinic has been established by an advisory committee in which the California Medical Association, Section of Otolaryngology, is represented by several members. Examination by an otologist is recommended whenever preliminary screening tests resulted in one of the following findings:

1. A loss of 20 decibels in one or both ears, in any two frequencies between 128 and 8192 cycles.
2. A loss of 30 decibels or more in any one frequency.
3. A mild hearing deficiency, with concomitant signs of a pathological condition which might result in progressively more severe loss of auditory function ("common sense referral").

These referral criteria have been developed from the experience of otological practice; and suggestions for changes or improvements of these present standards are invited.

No other single factor contributes so much to the

success of an otological diagnostic clinic as the presence of one or preferably both parents while the child is being examined. Advising the parents to this effect is part of the valuable spade work performed by the school nurse and her assistants. The child's history can then be taken by a nurse or lay assistant, who inserts the parent's answers to her questions in the history sheet. It is easy for the otologist subsequently to complete the otolaryngological history according to his findings.

DISCUSSIONS WITH PARENTS

Thereafter, the parents watch the re-check test by means of a pure-tone audiometer, and the otological examination performed by the doctor. If the parents are present while the child goes through the different steps of audiometric and otologic procedures, they will be impressed by the purposeful and efficient routine which they are witnessing. In this manner, the greatest danger to the success of any hearing conservation program can be largely avoided, namely the failure of the parents to follow up the examination and diagnosis by providing prompt care for the child's hearing defect. It is most important that the doctor should immediately discuss with the parents the audiometric findings, and different psychological and sociological aspects of deafness, as well as the medical and surgical care required by the child. If such a course is followed, the parents rarely fail to comply with the otologist's recommendations.

In the words of an outstanding nurse, in charge of one of the most successful hearing clinics in California, it is necessary to stress "the quality of the examination and the explanations to the parents rather than the number of children examined."

The examining otologist should also watch for signs of speech defects in the patient. At times, speech correction, special seating in the class room, lip reading, the use of a hearing aid, or auricular training may be indicated.

A few simple hints will perhaps aid in the efficient performance of the various routine examinations: Several lay assistants should be on hand to help the nurse and the audiometrist. Much of the doctor's time can be lost in waiting for the patient to be prepared for him, or in the ushering in and out of child and parents. During the course of the examination, the physician dictates brief notes to a lay assistant who, after a few cases, is usually able to write the findings and recommendations out in long hand. Whenever possible, these lay assistants should be prominent persons in the community, as for instance officers of the P. T.-A. They will appreciate the skill and thoroughness of the examinations, and soon

become staunch supporters of the Hearing Conservation Program. Once an otological diagnostic clinic has been properly started and conducted, the interest of the lay assistants and of the school personnel will not permit it to die.

Whenever an otologist, approved by the committee representing the California Medical Association, Section of Otolaryngology, is available in the community, he should be called upon to perform the specialized examinations; if one or more such otologists practice in the community, a rotating schedule for service in the clinic should be arranged. At the start of a new otological diagnostic clinic the assistance of an otologist with previous experience in conducting such clinics will prove helpful.

As the otologist is compensated for his time through special state appropriations, his work at the otological diagnostic clinic does not constitute a charity. Furthermore, fully 80 per cent of the examined children will require special medical or surgical care. And such services are not provided by the clinic and will, therefore, have to be administered by a local otologist, approved by the above mentioned committee, in his private practice. In many instances the parents insist that the examining doctor should thereafter treat the child privately. While in the great majority of cases the child will receive further treatment as a private patient, the Crippled Children's Service will arrange for needed care whenever the family is unable to pay. The entire Hearing Conservation Program, therefore, is on a sound professional and financial basis and offers an integrated plan of medical services for all acoustically handicapped children. By wholehearted cooperation with this state-wide program, the private physicians of California are making a positive contribution to the standard of health in their respective communities and are strengthening anew the argument against "socialized medicine."

Only minimal equipment is required, in order to conduct an otological diagnostic clinic, and oftentimes the instruments which the otologist usually carries in his out-call bag will adequately meet the needs. The following list has been compiled in order to convey an idea of the equipment and instruments necessary for an itinerant clinic.

1. A table on which to place instruments. Part of this table may be used by the lay assistant when taking notes.

2. Four chairs—one each for patient, parent, doctor, and assistant.

3. Light source—such as drop light or goose-neck desk lamp.

4. Washing facilities for hands and instruments.

5. Head mirror.

6. One pint of 70 per cent alcohol.

7. A container filled with 70 per cent alcohol in which used instruments can be rendered relatively sterile.

8. Paper towels.

9. A small pack of sterile cotton.

10. Finger cots for digital examination of nasal pharynx.

11. Wooden tongue blades.

12. 4 x 4 sterile gauze sponges.

13. One per cent ephedrine sulphate in normal saline—one ounce; to be used for shrinkage packs.

14. Ear specula—approximately one dozen of various sizes.

15. Metal applicators—one-half dozen.

16. Nasal specula—one-half dozen.

17. Postnasal and laryngeal mirrors—approximately one dozen of various sizes.

18. Cerumen curettes—approximately one-half dozen of various sizes.

19. Bayonet forceps—approximately one-half dozen of various sizes.

20. Cerumen syringe.

21. Emesis basin.

22. A pure-tone audiometer.

More equipment and other ear, nose and throat instruments may be desirable, especially if the clinic is to be more or less permanently conducted at the same location. Special chairs, stools, cabinets, lights, sterilizers, as well as positive and negative pressure would considerably help to increase efficiency. But it must be remembered that a hearing clinic of this type is only intended to serve diagnostic purposes, while all treatment is conducted privately by the otologist at his office or at a hospital.

Forms for the patient's history as well as audiometric and physical findings (HC 1-4) will be furnished by the Hearing Conservation Section, Bureau of Maternal and Child Health of the California Department of Public Health, in San Francisco. The records will be completed by the nurse and lay assistants. One copy will be filed with the child's health record at his school, while the others will eventually reach the treating physician, the local health department, and the Hearing Conservation Specialist to be used for follow-up and statistical purposes. These records will also furnish the basis for securing adequate appropriations from the legislature in order to sustain and expand the Hearing Conservation Program.

65 North Madison Avenue.

MEDICAL PROGRESS:

Ophthalmological Progress: Sight Restoration by Corneal Transplant

JOHN P. LORDAN, *Beverly Hills*

OF the 250,000 blind persons in the United States today, 22,000 of these have impaired vision due to corneal scarring. Although half of these patients are unsuitable for graft because of the varied causes of this condition, the recent medical and surgical progress which has been made in the field of keratoplasty indicates that many who believed their conditions to be hopeless can successfully avail themselves of operation.

Surveys of the early literature demonstrate that surgeons were concerned with the problems presented by eye tissue therapy as early as 1789. It was in this year that Pellier made the first unsuccessful attempt at the replacement of diseased tissue by a cornea made of glass and supported by a gold band. The real forerunners of today's modern operation, however, were not reported until the years 1823 and 1824 when Meissner conceived the idea of grafting a transparent animal cornea, and Reisinger gave the name "keratoplasty" to an operation in which he experimented with the substitution of a leukoma by a transparent cornea in the rabbit. The first ideas concerning the contemporary theory of the biologic processes occurring in keratoplasty were expressed in 1843 by Pluvier who, after several years of observation, reported his belief that favorable results of corneal grafting were due to the growth of corneal elements in the host. In his opinion, corneas taken from cadavers supplied the best material for transplantation.

During the early half of the Nineteenth Century, all work in keratoplasty which was attempted on human beings consisted mainly in experimentation with single cases of transplantation, none of which succeeded. The operation was indeed a formidable undertaking due to the limitations of instruments and methods of anesthesia. Despite the lack of favorable clinical results and the pessimism of many physicians, attempts at keratoplasty were continued, and several advances in technique were developed, due mainly to the influence of a German investigator, Von Hippel. This physician, who conducted his experiments from 1870 to 1880, emphasized the importance of partial transplantation of the cornea, and developed a technique in which the trephine, which could measure the exact size and shape of the transplant, became widely used.

It was not until 1907 that an Austrian, Zirm, gained international fame through his report of the first successful case of keratoplasty. Using Von Hippel's trephine, this surgeon succeeded in removing a clear disc from the blind eye of an 11 year old

boy and transplanting it to the eye of a 45 year old man whose cornea had become opaque due to a burn from unslaked lime. From 1908 to 1930 interest in eye tissue therapy was again fanned by the work of Elschnig and his co-workers in the Prague Clinic. Of the 203 patients on whom corneal grafting was performed, they recorded 20 per cent success among the cases as a whole, and 73 per cent success in those patients whose leukomas had developed following interstitial keratitis. During the years from 1922 to 1938, the work of Filatov⁸ and his associates, who reported 435 keratoplasties carried out in their clinic in Odessa, did much to popularize keratoplasty. These investigators not only restimulated interest in the operation through their development of new instruments, a more perfected technique, and the widening of the indications for corneal transplantation, but it was in this school that the use of the preserved cornea originated.

The most outstanding name in the field of keratoplasty today is that of Castroviejo in New York who, in 1932, reported 300 cases of corneal grafts, 80 of which were performed on human eyes. Since this time credit goes to this investigator for having contributed more than any other to the perfection of sound surgical practice in the present-day methods of eye tissue therapy.

SELECTION OF CASES

Whenever a corneal opacity is the major cause of very poor vision, keratoplasty should be considered. Proper selection of cases is most important, however, for the success of any such operation, and the physician must determine whether the case is favorable for improved vision, whether the operation should be advised for cosmetic effect alone, or whether the results would tend to be unfavorable.

The fate of the transplantation of the cornea depends primarily on the histologic nature of the leukoma found within the recipient eye, with the prognosis of such an operation becoming favorable or unfavorable depending on the degree of opacification discovered there. It is important that the physician conduct a thorough examination prior to the operation to determine the nature of the opacity, the thickness of the cornea, the depth of the anterior chamber, the possible presence of anterior or posterior synechiae, and, in general, the extent to which normal corneal elements can be found within the host. This examination can best be carried out by means of an ophthalmoscope and slit lamp, or, if the leukoma is very dense, by transillumination and infra-red photography.

Those cases which generally afford the most favorable results for the patient are those in which normal intraocular tension is present, the corneal leukoma is not dense enough to cause impairment of vision, the diseased tissue is limited to the cornea, and the central corneal opacities, which will be replaced by the transplant, are surrounded by healthy tissue. Keratoplasty is generally advisable when impaired vision has been caused by phlyctenular keratitis, trachoma, rosacea keratitis, familial corneal degeneration, and by interstitial keratitis when the opacity is not too extensive and the transplant remains in contact with fairly healthy corneal tissue.

Those cases which are less favorable for the achievement of ultimate transparency of the graft, but are still likely to give a high percentage of successful results and considerable improvement in vision, are those caused by certain types of corneal dystrophies, superficial corneal opacities resulting from tear gas burns, superficial opacities extending over the entire area of the cornea when most of the area is normal, and Descemetocoeles where the whole opacity may be substituted for a corneal graft. In cases where adherent leukomas are present, it is advisable that keratoplasty be preceded by an iridectomy for a successful result.

Where the eye is amblyopic and there is a dense central leukoma present, it is often advisable to perform a corneal graft for the cosmetic effect alone. Prognosis is usually favorable for these cases where the condition is caused by injury which resulted in blood staining of the cornea, in cases of keratoconus, particularly those where apical corneal changes are present and the patient is not aided by contact lenses, and in cases of central circumscribed corneal leukoma with clear peripheral tissue and in the absence of anterior synechiae. The operation may also be advised for patients with a central superficial or deep leukoma caused by interstitial keratitis whose eyes are "quiet" without underlying pathological change in the iris or the presence of synechiae, and whose Wassermann reactions are negative. The prognosis is usually less favorable and should not be advised for patients whose impaired vision is due to gonorrhea blennorrhoea, tuberculosis of the cornea, lipid degeneration of the cornea, severe lime or acid burns, or the more serious types of corneal dystrophy.

Unless preliminary operations have been performed which have prepared a more favorable soil for the final operation, definitely unfavorable results can be expected should keratoplasty be attempted on patients whose eyes present a dense leukoma covering the entire corneal area, in which (particularly after intra-capsular cataract extraction) aphakia is present, where the intra-ocular tension is increased, or where there is corneal cloudiness with a densely vascularized pannus present. For patients with visual disabilities caused by burns (lime, acid or alkali), glaucoma, or perforating ulcers of the cornea, the operation is ill advised. Again, keratoplasty should not be undertaken for those patients who are very uncooperative and may develop a stormy postopera-

tive period, or for those in whom the corneal opacities have been present for many years, particularly where there is pronounced nystagmus or inflammation present. Experience has demonstrated that cases of corneal opacities caused by pemphigus, corneal opacities with extensive anterior synechiae, large corneal opacities with calcareous degeneration, and those with Fuch's dystrophy have not improved with the grafting procedure.

BIOCHEMISTRY OF THE TRANSPLANT

A study of past literature concerning corneal grafts indicates two concepts which have developed relating to the question of the biochemistry of the transplant. The argument which arose centered around the problem of whether the transplant retained its own cellular identity within the recipient eye, or whether it was gradually replaced by the cells of the host. According to the early workers, Lohlein and Salzer,⁴ the use of fresh or living tissue was unnecessary since the graft served merely as a temporary framework whose purpose was to guide and support the corneal cells of the host until those cells invaded and gradually replaced the transplant. This theory, which was falsely based on studies of nebulous or opaque transplants in which abnormal corneal elements had been found, has been refuted by modern investigators. Later experimental work in this field has proved that the transplant takes an active part when grafted to the eye of the host by maintaining its own individuality and preserving its separate cellular elements within the parenchyma of the recipient eye.

Castroviejo⁴ proved in microscopic studies on transplants removed from six human beings that the original layers of the corneal graft could be recognized as late as several months after the operation had taken place. Fine⁹ bears him out in this report when he states that an occasional cross section found in such experimental work would show two layers of Descemet's membrane, the curled edges of one in position, with the new membrane growing across. This proved Filatov's⁸ belief that "biologic stimulators" of living tissues can be introduced into a diseased organism by transplantation, and that the regenerative processes of the latter increase while the pathologic disturbances, in turn, diminish or disappear. As Fine⁹ has so aptly explained, the cornea is an unusual tissue whose low metabolism determines its small nutritional requirements. While the corneal stroma and endothelium may live indefinitely in aqueous alone, the corneal epithelium has a high metabolic activity which accounts for the rapidity of its regeneration. Castroviejo⁴ again found that corneal corpuscular division could take place and that, if the epithelial cells of the graft had been damaged, they might be replaced by the epithelial cells of the host, and likewise a new Descemet's membrane might appear without ensuing nebulosity or opacity. If, however, there was any damage to the stroma of the transplant, it was repaired by the host tissue at the expense of permanent nebulosity or opacity within the graft.

As Fine⁹ points out, the absence of blood vessels is of primary importance in order that the transparency of the graft be permanently insured. Should blood vessels be present within the cornea of the recipient eye, the proliferation of fibrous tissue which invariably follows the implantation of a graft, results in opacity of the transplant. Not only is it imperative, therefore, that fresh, living material be employed as the donor tissue, but the successful transplant must be one which is insensitive and has been grafted to an area which receives protection from the sensitive cornea surrounding it.

The success or failure of the numerous methods of grafting technique depends on three factors: the integrity of the host, the use of suitable healthy corneal tissue, and an exact and accurate cutting of the window in order that a perfect, fluid-tight fit be obtained. The two types of transplants employed by present-day surgeons have either round or square perimeters. These in turn, can be classified two ways: by the amount of surface area which is removed, and by the depth or number of layers cut away. Whether the grafts are circular or rectangular in shape makes no difference as long as the edges are smooth and an exact tracing has been made of both the transplant and the defect in order that a perfect fit will be insured. Through frequent experimentation it has been discovered that complete penetration of the full thickness of the cornea, with the removal of a window, variable in area, is not only the most dramatic but the most successful method of replacing the opaque corneal tissue.

All methods of keratoplasty which were employed up to the year 1932 proved that the use of round grafts made with Von Hippel's trephine, as modified, more or less, by the work of Zirm, Elschmig, Filatov and Thomas, had given the best results. Castroviejo, who published the reports of his first experiments in 1932, has made a greater number of improvements in the field of keratoplasty than any other ophthalmological surgeon. This investigator advocates the use of square transplants which have points of reference and, he states, are not only easier to cut and place than round grafts, but have a shape which can be less easily seen several months after the operation. Regarding the relative size of the window to be removed from the recipient eye, Fine proved by his experiments with keratoconus that the large corneal graft which must, of necessity, be cut back into relatively normal corneal tissue, had a greater chance for successful union and ultimate transparency. In order to prevent the formation of adhesions within the chamber and the possible rise of intra-ocular tension, rapid reformation of the anterior chamber is essential to the success of the operation. Surgeons have recently demonstrated a method by which an air bubble is injected into the anterior chamber immediately after the graft has been fitted in place, which obviates this hazard by serving to reestablish the chamber successfully.

Not only has there been a wider development of techniques employed in the actual transplantation of corneal tissue, but surgeons have seen the recent

introduction of several types of new instruments designed to reduce the difficulties encountered in cutting the tissues, making exact measurements, and fitting the graft into proper position. To surmount the ever-present danger of injury to the lens, and to minimize the pressure upon the ocular structures, a type of corneal punch has recently been devised for both the round and square type of transplants, which, with the double action of its rounded and dull lower cutting blade, reduces the amount of force required to snip the cornea.² Another instrument designed to hold the transplant firmly in place yet relieve the pressure during the grafting procedure is a pillbox type of forceps which is slitted at the ends for entrance of the needles.¹ Brown and Nantz,³ in an effort to avoid the use of sutures in corneal healing, endeavored to develop a biologic substitute for sutures which would be mechanically strong, non-irritating, and capable of absorption. Through their experiments with fibrin on rabbits, they formed the opinion that it would be unsafe to eliminate sutures completely in operations on human eyes. They demonstrated, however, that the anterior chamber filled immediately when fibrin was dropped on the cornea, and that the substance can act as a reinforcement with which to hold the graft in place as well as a cushion to protect the lens.

DONOR TISSUES

The scarcity of donor material and the difficulties inherent in its preservation have, in past years, presented one of the greatest problems for the eye surgeon. The physician must exercise the greatest care in the evaluation of the donor tissue to be employed. Best results are obtained when the corneal material is fresh and is grafted shortly after its removal from the donor. Transplants can be obtained from various sources: they can be removed from the fellow eye of the patient himself (autotransplant) or from the eye of another individual (homotransplant). Experiments by Castroviejo and Elliott⁵ with corneoscleral transplants on rabbits proved that the use of any heterogeneous tissue other than that of the cornea was inadvisable because of its tendency to form an imperfect union and to result, invariably, in opacity of the graft. Homotransplants have been found to supply the best material, and these can be obtained either from patients having eye lesions which require enucleation but whose corneas are normal, from cadavers of either adults or children whose eyes are enucleated shortly after death, or from stillborn infants (seven months to full term) whose eyes are enucleated shortly after delivery.

It has been found that autolysis of the eye can be retarded several days, and that adult eyes can give normal transparency and no marked thickness during a period of from 48 to 72 hours after enucleation. Stillborn eyes, however, develop a more rapid loss of corneal transparency after enucleation, and 18 hours is the maximum period of time allowed before autolysis is expected. In their efforts to extend the short three-day storage period, investigators¹⁸ have conducted many experiments to determine the

efficacy of various mediums which could be useful in the preservation of corneal tissue. They soon disproved the belief that rapid freezing of donor eyes in liquid nitrogen presented a hopeful means of preserving the tissue. While the corneas were clear and well preserved under these conditions, with a minimum amount of physical and chemical change taking place, when grafted they became opaque, having lost the vital life-giving quality. Further research along these lines proved to investigators that for best results the eye should be preserved intact in a Ringer's or normal saline solution at a temperature of from 3 to 4 degrees Centigrade.

One of the greatest and most recent steps taken to advance the cause of corneal tissue therapy has been in the creation and establishment of eye banks throughout the nation. Such agencies have been set up to eliminate the difficulty which has so hindered ophthalmologists in the past, the lack of suitable and fresh donor material. The State of California has two such organizations, the Stanford Eye Bank at 2398 Sacramento Street in San Francisco, and the Estelle Doheny Eye Laboratory at 2131 West Third Street (St. Vincent's Hospital) in Los Angeles. These banks, which act as coordinators between those in need of corneas and those wishing to donate them, make it their object not only to establish sources of supply for salvaged eyes and corneal tissue, but to extend the knowledge and skill required to perform keratoplasties through teaching and research. As storehouses and distributing centers for enucleated eyes, the banks conduct pathological studies on all eyes sent to them, and carry on continual research campaigns designed to widen the sources of supply and to develop new and better methods of preservation.

In issuing instructions concerning those eyes which are acceptable, the eye banks require that the corneas be normal, and that the individuals from whom the eyes are obtained must have had no infectious disease and must have had a negative serologic test for syphilis. Eyes of stillborn infants may be used if the mother had a negative serologic test, and eyes with intra-ocular tumors are acceptable if the tumor does not involve the cornea, iris or ciliary body. Eyes to be removed after death should be protected by careful closure of the eyelids prior to enucleation, and the enucleation should be performed within six hours after death.

In an effort to minimize the nuisance to the physician of sending the enucleated eyes off to the bank, these collection centers supply the containers in which the eyes should be transported, and make the handling of the preserved tissue a simple routine which the hospital or a nurse might carry out with little effort. It is necessary that consent for the use of the eyes be obtained on forms which the bank provides, and that a history form be filled out and accompany each bottle used. The bottle supplied must be sterilized, and the gauze at the bottom moistened with sterile saline solution before the eye is placed in the container. After enucleation the eye should be placed in this sterile bottle immediately,

the bottle closed tightly, and then kept in a refrigerator at a temperature of from 3 to 4 degrees Centigrade.

It is through such vigorous attempts to make the restoration of sight through corneal grafting a community-wide project, that the eye banks have done much to further interest in this field of surgery, not only among physicians but among the general public as well.

AVOIDANCE OF VASCULARIZATION

Due to the use of present-day modern techniques, 90 per cent of the patients who undergo keratoplasty may expect to have permanently transparent grafts and considerable improvement in vision. Non-union of the graft occurs only as a result of poor technique, infection, or misbehavior of the patient. The complication which the physician must carefully guard against, however, is opacification of the transplant. While this unfortunate result can occur if there is imperfect coaptation of the edges into the cornea of the host, or incarceration of the intra-ocular structures into the wound with a subsequent development of connective tissue behind the graft, vascularization is its main cause. This process usually involves the infiltration of the transplant by lymphocytes and the appearance of wandering cells which should never be present in the healing of a transparent cornea. According to Castroviejo,⁷ once these blood vessels have been formed, treatment by x-ray or radium is useless. It is a wise measure, therefore, if the surgeon guards against this latent possibility by administering such therapy prophylactically for a definite period after the operation.

Involving as it does the fundamental biological principle of the reconstruction of living tissue, the modern surgical procedure of keratoplasty has brought new hope to many who would have suffered blindness or ugliness unnecessarily. The first unsuccessful trials in the field of corneal tissue therapy were due mainly to faulty technique and the improper selection of cases. For too long surgical progress was retarded by misconceptions concerning the actual physiological processes within the eye and by the large number of inadequately reported cases which appeared in the literature and served to add to the confusion. Today, as more surgeons become qualified to perform this operation, as newer and more perfected techniques are being advanced, and as a greater number of eye banks are being established to aid in research, physicians and the public alike are being convinced of the greater opportunity which has been extended to the blind for the restoration of their sight through keratoplasty.

9730 Wilshire Boulevard.

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CASE REPORTS

◀ Primary Spindle Cell Fibromyosarcoma of the Gallbladder ▶ Chylothorax

Primary Spindle Cell Fibromyosarcoma of the Gallbladder

JAMES H. THOMPSON, M.D., and
WARREN L. BOSTICK, M.D.
San Francisco

THIS is the report of a case of primary spindle cell fibromyosarcoma of the gallbladder with autopsy findings. It is reported in view of the rarity of the disease and the obvious interest, both surgical and medical, attaching to lesions of the gallbladder. A review of the literature reveals reports of only 37 similar cases. The pathologic findings in a series of 525 patients operated on for gallbladder disease were reviewed by Erdmann. Of these only six had malignant changes (one sarcoma and five carcinoma). Ragius reviewed 8,534 autopsies in which there were 31 cases of primary malignancy of the gallbladder (28 carcinoma, two sarcoma and one melanoblastoma).

The popular pathology texts do not mention sarcoma of the gallbladder and it is only with difficulty that the bibliography and literature on this subject is found. For this reason we are including a full bibliography of the subject. Dyrenforth and Jelks reviewed the literature to 1937. Many of their cases from the foreign journals were taken second hand from the reviews of DeGaetani and Triggiani and the bibliography is not complete. The monograph by Karlmark is the best source we were able to find. It presents a full review of the literature to 1932 and includes interesting tables, excellent drawings and plates.

Most of the reported cases present a striking clinical similarity and may be described as follows: Spindle cell fibromyosarcoma of the gallbladder characteristically runs a rapid clinical course, ending in death due to extension and metastasis. The course is almost always less than one year and usually less than six months, although the date of onset of the symptoms is difficult to determine due to the frequent complication of cholelithiasis. The most prominent symptom is constant, severe, right upper quadrant pain. This pain is sharp but not colicky and radiates to the back, occasionally to the right lower quadrant or to the right shoulder. Jaundice usually appears late if at all. A large tender mass is usually palpable and as a rule consists of a greatly distended gallbladder and a moderate-sized tumor. The disease is four times more common in females than in males and it occurs as a rule in the fourth, fifth or sixth decade.

Table 1 is a summary of all the cases of spindle cell fibromyosarcoma of the gallbladder we were able to find in the literature. There were a few others referred to in the literature (Bianchi, 1933; DeGaetani, 1932; Bignami, 1936; Lindenbaum, 1940; Romani, 1932; Hromada, 1933) but we were unable to obtain the journals. These references are added to the bibliography for the sake of completeness. Of the 37 cases reviewed, 29 were in women, six in men,

and in two the sex was not stated. The average age was 58 years, and there was a palpable mass in 18 out of 20 cases in which this observation was recorded. The average length of life after the onset of symptoms was about 6.2 months. Stones were found in 30 of the 32 cases in which this observation was recorded. There was one case (Cathcart, 1911) in which the patient lived and was apparently well for 2½ years after operation. In that case the sarcoma was complicated by a cholecystic abscess and empyema. The sarcoma was apparently completely removed.

In addition to the spindle cell sarcomas, we have listed other sarcomata at the foot of Table 1. This list includes five lymphosarcoma, five of the perithelioma type, two melanosarcoma, one angiosarcoma and an "alveolarsarcoma."

CASE REPORT

The patient was a 32 year old, single, white female clerk who was admitted to the Franklin Hospital, San Francisco, December, 1945, complaining of right flank pain, radiating around to the right lower quadrant of the abdomen.

Present Illness: The patient was well until about six months prior to admission, at which time she was awakened at night by a pain in the chest and the right upper quadrant of the abdomen. The pain soon disappeared. After breakfast the following morning she was seized again by sudden severe general upper abdominal crampy pain associated with nausea and vomiting. She brought up mostly undigested food and some "bile." The severe pain "had her doubled up for two hours." Then it gradually decreased and was replaced by a slight steady aching pain in the right lower quadrant, right flank and back. This pain gradually went away over a period of three weeks' time. Her temperature during the acute attack was 100°F, but had been normal since. X-ray of kidneys was said to be negative. There was no further nausea and vomiting, no jaundice or change in character of urine or stool. She was well for four months. About two months prior to hospital admission she noted the onset of general tiredness which became progressively worse. About five weeks prior to admission, she developed a pressing muscular soreness at the lower tip of the right scapula which she attributed to sitting in a draft. There was no nausea, vomiting or change in color of stool.

Family History: The father died of cancer of stomach. There was no other familial history of cancer or gallbladder disease.

Past History: A tonsillectomy had been done in childhood, otherwise no operations, hospitalization, serious illnesses or injuries.

System Review: Negative.

Physical Examination: The patient, a well developed but undernourished white female, was in moderate distress due to right flank and right abdominal pain. General physical examination was essentially negative. Examination of the abdomen revealed moderate tenderness in the right lower quadrant. There was a definite hard irregular slightly movable mass (about 3 cm. by 6 cm.) palpable over the region of the ascending colon. In the flank there was slight tender-

ness just to the right of the lower thoracic and upper lumbar vertebra.

Roentgen examination of the chest and the colon was essentially negative.

Laboratory: Blood count showed hemoglobin 68% (10 gm.) erythrocytes numbered 3,800,000, leukocytes 11,400.

Urinalysis: Clear, amber; pH 6.4; albumin negative; sugar negative; occ. squamous epithel. and pus cells.

Wassermann and Kahn: Negative. Sedimentation rate: (Wintrobe) 6 mm. in 15 minutes; 26 mm. in 45 minutes; 29 mm. in 60 minutes.

Feces: Dark brown material, formed, no mucus present; occult blood negative.

Operation on December 21, 1945 was performed by Dr. H. B. Stephens through a right rectus incision. The gallbladder and cystic duct were greatly dilated. The gallbladder was removed and two large papillary tumors were found at the mouth of the gallbladder obstructing the cystic duct. Within the gallbladder there was a large clot partly mixed with concentrated bile. There was no local extension of the tumors and the liver appeared free of metastases. Palpation of the other abdominal organs revealed no abnormal masses

TABLE 1.—Summary of All Cases of Spindle Cell Fibromyosarcoma the Authors Were Able to Find in the Literature

No.	Date	Author	Sex	Age	Survival after onset	G. B. Palpable	Stones	Pathology
SPINDLE CELL SARCOMA								
1	1878	Ingalls	F	55	2 mo.	yes	yes	Pred. spindle cell
2	1881	Destree	F	52	1 yr.	yes	yes	Spindle cell sarcoma
3	1897	Griffon	F	76	2 mo.	?	yes	Fibrosarcoma
4	1900	Newjadomski	F	55	1 yr.	?	yes	Polymorphous
5	1904	Landsteiner	M	68	1 yr.	yes	yes	Myosarcoma (spindle cell)
6	1907	Landsteiner	?	?	?	?	yes	Spindle cell (myo) sarcoma
7	1908	Parlavacchio	M	59	1 yr.	no	none	Spindle cell sarcoma
8	1908	Dialti	F	60	2 mo.	?	yes	Spindle cell sarcoma
9	1908	Arheiner	F	59	6 mo.	?	yes	Spindle and giant cell sarcoma
10	1909	Bayer	F	59	1½ yr. ?	yes	yes	Spindle cell sarcoma
11	1909	Bayer	F	65	2-6 mo.	no	?	Polymorphous (? chondro) sarc.
12	1910	Hotes	F	52	3 mo.	?	yes	Spindle cell sarcoma
13	1911	Cathcart	M	45	? lived	yes	yes	Spindle cell sarcoma
14	1911	Brunner	?	?	?	?	yes	Stellate cell sarcoma
15	1911	Strassmann	F	54	?	yes	yes	Giant and round cell sarcoma
16	1913	Thöle	F	38	? alive	?	yes	Fibrosarcoma
17	1914	Schoenlauck	F	49	?	?	yes	Polymorphous cell sarcoma
18	1914	Iwasaki	F	52	1 yr.	yes	?	Spindle and giant cell sarcoma
19	1915	Carson	F	38	?	yes	yes	Round and spindle cells—sarcoma
20	1918	Jaffe	M	45	2 mo.	yes	yes	Polymorphous and spindle cell sarc.
21	1921	Stickdorn	F	59	9 mo.	?	yes	Polymorphous and spindle cell sarc.
22	1926	Brendolan	F	51	?	?	yes	Spindle cell sarcoma
23	1927	Szymonowicz	F	52	6 mo.	yes	yes	Polymorphous cell sarcoma
24	1929	Rolliston	F	56	?	?	?	Spindle cell sarcoma
25	1931	Kaufmann	F	51	2 mo.	?	yes	Polymorphous cell sarcoma
26	1931	Brunschwig	F	55	5 mo.	yes	no	Spindle cell sarcoma
27	1932	Karlmark	F	59	?	yes	yes	Polymorphous cell sarcoma
28	1932	Karlmark	F	77	9 mo.	?	yes	Giant and spindle cell sarcoma
29	1932	Karlmark	F	73	3 mo.	yes	?	Myosarc. with spindle cells
30	1934	Triggiani	M	68	?	?	?	Spindle and round cell sarcoma
31	1935	Erdmann	F	52	5 mo.	yes	yes	Spindle cell myosarcoma
32	1936	Büttner	F	70	1 yr.	yes	yes	Spindle cell sarcoma
33	1937	Dyrenforth	F	72	3 mo.	yes	yes	Spindle cell sarcoma
34	1937	Ragius	M	62	5 wks.	yes	yes	Polymorphic sarcoma
35	1937	Ragius	F	50	2 mo.	yes	yes	Spindle cell sarcoma
36	1939	Oesterlin	F	79	? 3 mo.	?	yes	Spindle cell sarcoma
37	1939	Sammartino	F	63	2 mo.	?	yes	Spindle cell sarcoma
LYMPHOSARCOMA								
1	1882	Seibert	M	52	?	?	?	Lymphosarcoma
2	1918	Rohdenburg	F	55	2 mo.	?	yes	Lymphosarcoma
3	1921	Magoun	?	?	?	?	yes	Lymphosarcoma
4	1923	Dalla Valle	F	53	?	?	yes	Round cell sarcoma
5	1928	Althabe	F	50	4 or 5 yr.	?	yes	Round cell sarcoma
ENDO AND PERITHELIOMA								
1	1903	Becker	F	65	13 mo.	yes	?	Hem. endothelioma
2	1907	Bland-Sutton	F	43	?	?	?	Perithelioma
3	1913	Phillips	F	70	15 mo.	yes	yes	Endothelioma
4	1913	Phillips	M	78	3 mo.	?	yes	Endothelial sarcoma
5	1931	Keinknecht	F	69	9 wks.	yes	?	Endothelial sarcoma
MELANOSARCOMA								
1	1907	Wieting	F	40	?	?	no	Melanoblastoma
2	1937	Ragius	?	?	?	?	?	Melanoblastoma
OTHERS								
1	1889	Klingel	F	50	?	yes	yes	Angiosarcoma
2	1923	Dalla Valle	M	68	?	?	none	Alveolarsarcoma

and it was felt that the tumor was completely removed.

Postoperative course: About three days postoperatively the patient developed left sided pleurisy with effusion which subsided spontaneously. Her postoperative course was otherwise uneventful and she was discharged in January, 1946.

Following discharge from the hospital the patient's symptoms gradually improved but clinically it was apparent she had metastases and she pursued a downhill course with a drop in weight from 95 lbs. to 82 lbs. shortly before her death. Her RBC and Hgb. went from 3,800,000 and 68% down to 2,000,000 and 30%, shortly before her death, in spite of several whole blood transfusions.

February 8, 1946: The chest was clear to physical examination and fluoroscopy. Reflexes equal and active. There was no adenopathy; there was moderate tenderness and guarding in the right upper quadrant in relation to a small mass felt beneath her surgical scar. February 26, 1946: The RUQ mass was increased in size and clinically it was thought to be an extension into the retroperitoneal space or lymph nodes. There was a slight sensation of fullness on the left in the flank. March 12, 1946: (Last office visit) She was very weak. There were masses in both flanks. The one in the right flank was larger. She was seen frequently at home in Marin County, by her local physician, where she received supportive treatment until she expired on April 3, 1946.

Pathological Report: Surgical Specimen: Gross Description: Tissue removed reveals a gallbladder outline 11 cm. in length and 5 cm. in diameter with quite a bit of roughness of the surface. Near the neck of the gallbladder there is seen induration and apparent proliferation of tissues. The wall of the gallbladder is thickened and the lumen is filled with clear watery sanguinous fluid. At the base of the gallbladder are several polypoid friable structures protruding 1 cm. into the lumen proper and grossly invading the gallbladder wall.

Microscopic Description: This neoplasm presents fusiform anaplastic cells usually bi-polar and forming distinct cytoplasmic strands, although without clearcut evidence of collagen deposition. The nuclei are oval and show much mitotic activity and pyknotoses. Scattered throughout are frequent giant cells with many nuclei similar in structure to the mononucleated cell forms. Necrosis is evident throughout as well as some pigment and apparent hemorrhage. No specific pattern is noted in the cell arrangement, except for parallel sheets of fusiform cells.

Diagnosis: Sarcoma of gallbladder.

Autopsy Report: The body was rather emaciated, but was otherwise externally negative. There was about 1000 cc. of clear fluid in the abdominal cavity and a few old adhesions at the site of surgical operation. The organs were negative, except for some tumor tissue in the mesentery. The autopsy was limited to the abdomen; but palpation through the diaphragm revealed no abnormalities in the chest. The liver was smooth and showed no gross evidence of tumor except at the site of the gallbladder, there was a tumor, 3 to 4 cm. in size and which extended directly into a larger tumor in the adjacent mesentery. The spleen and pancreas showed no tumor and no gross abnormalities. The adrenals were very large and completely replaced by tumor, each now measured 10 cm. in size. No adrenal tissue was seen. The tumor in the adrenal area was granular in consistency. The kidneys were rather pale but showed no evidence of abnormality and no tumor. Internal genitalia were normal except for a tumor implant in the left ovary. The intestinal tract contained no tumor. All other portions of the body were normal.

Microscopic Description: Tumors were found in the adrenal, at the old gallbladder site, in the ovary and in

the mesentery, all of similar pattern to that of the original surgical specimen. The cells are fusiform with poorly defined outline. Collagen or reticulum was not demonstrated. The oval nuclei sometimes had a prominent nucleolus, and these nuclei often showed mitoses, much pleomorphism, and many nuclei. The tumor showed much necrosis, hemorrhage, and blood pigment deposition. There is no pattern in the tumor such as would indicate a neurogenic, and certainly no suggestion of an epithelial type of arrangement. Special stains were not informative. No cross striations were seen. Kidneys showed a moderate pyelonephritis, hemoglobin casts, and congestion about the glomeruli, but no inflammatory infiltration.

Pathological Diagnosis: Spindle cell fibromyosarcoma of the gallbladder with metastases to the adrenals, ovaries and mesentery.

Discussion: That this tumor represents a primary neoplasm of the gallbladder seems to be true beyond all reasonable doubt. At operation the tumor was limited entirely to the gallbladder and its neck, and palpation of other abdominal organs revealed no tumor elsewhere. At autopsy it is true that the adrenals presented perhaps the most striking possible source of tumor, but the pattern of the tumor is not at all characteristic of the adrenal, and the fact that both adrenal tumors were of equal size favors their both being metastatic. There was no clue as to any other possible primary origin. In a few areas these cells are arranged in fasciculi, but in no place is there actually distinct pattern, such as would warrant the identification of the specific tissue of origin. Special and differential stains fail to reveal the actual type of cell other than its being sarcomatous. The fact that the collagen is not found and that the van Gieson's stain does not show any significant amount of connective tissue somewhat supports the opinion that these cells are of smooth muscle origin. This is entirely possible and perhaps even probable, but an anaplastic fibrosarcoma which did not form collagen or significant reticulum would present an identical staining characteristic. The scattered giant cells which are noted, are only multinucleated forms of the fusiform cells which make up the major cell type. No cross striations are seen in these large multinucleated forms. There is moderate vascularity in the tissue, but nothing that would support the blood vessels as possibly being the tissue of origin.

Investigation of the different types of gallbladder tumors which have been reported in the literature shows that most of these tumors have been classified on the simple structural detail of the cells involved. Such being the case, the term spindle cell sarcoma is most frequent and accounts for at least two-thirds of these tumors reported. The remaining percentage is made up by such descriptions as round cell sarcoma, polymorphic sarcoma and giant cell type, etc. A few of the tumors have received specific tissue names such as myosarcoma, chondrosarcoma, etc. Of the malignant mesoblastic tumors of the gallbladder it is very probable that a great majority of them will be on the basis of either connective tissue origin or smooth muscle. The distinction between these two types of cell type may be very difficult or impossible, particularly in anaplastic tumors.

Because most of the sarcomas of the gallbladder are a cellular type of spindle-cell tumor, the choice of an adequate term to describe this type of tumor is not easy. This spindle-type of pattern is very likely to originate from one of two tissues: either a fibroblast or a myoblast. In both types of tumors, scattered giant cells and multinucleated cells are to be expected. Special stains occasionally help in distinguishing the one type of tissue from the other, but more frequently than not these procedures fail to make this distinction, particularly as the tumor becomes more anaplastic. Thus, in naming such a tumor a simple descriptive name

indicating the predominant shape of the cell type, such as simple spindle-cell sarcoma could be used. A second choice would be to choose a name such as fibromyosarcoma of the gallbladder, thus indicating that probably both cell types are concerned in the process and certainly suggesting that each specific cell type is difficult to separate from the other. In the tumor which is being reported, it is felt that the evidence histologically favors the essential background cell as being smooth muscle and that the term which most adequately describes this tumor is a spindle-cell fibromyosarcoma.

SUMMARY

1. The literature pertaining to sarcoma of the gallbladder is briefly summarized and a full bibliography of the subject is listed.
2. One case of spindle-cell fibromyosarcoma of the gallbladder is reported.
3. The name spindle-cell fibromyosarcoma is suggested for this type of gallbladder tumor.

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Chylothorax—A Case Report

R. H. SUNDBERG, M.D., *San Diego*

MOST authors feel that chylothorax is more common than the number of reported cases would indicate. Of nine cases reported from the Mayo Clinic up to 1944, seven occurred in the 11-month period preceding the report.⁴ It was estimated that about 66 cases of traumatic chylothorax had been reported in the literature. Yater,⁷ in 1935, considered that 80 cases of non-traumatic chylothorax had been reported. This made a total somewhat greater than that estimated by Jahsman.² It is generally conceded that in traumatic chylothorax under conservative therapy the mortality rate is about 50 per cent; it is higher in non-traumatic cases because of the usual gravity of the underlying cause. We believe that the condition is sufficiently rare and of sufficiently serious importance when it does occur, to make valuable the report of another traumatic case and the effective treatment of it.

CASE REPORT

The patient, a woman aged 36 years, had been under observation for three years, during which time she had required hospitalization five times because of mitral stenosis, auricular fibrillation and congestive failure. In April, 1944, bronchopneumonia developed; the condition responded to sulfamerazine therapy and although a pleural friction rub developed, improvement was steady and the patient was able to leave the hospital after 11 days.

On July 10, 1944, the patient presented herself at the Clinic with a right hydrothorax. At this time, 500 cc. of bloody fluid was aspirated; two days later 1000 cc. was removed. Thoracentesis was repeated every few days with the removal of approximately 1200 cc. of fluid each time. At first the fluid was bloody, then it became pinkish white in color and finally it assumed the characteristic milky appearance of chyle. Culture of the fluid was sterile. Chemical analysis revealed many lymph cells and red blood cells, a total lipid content of 1.9 mg. per cent, protein content of 3.8 mg. per cent, and non-protein nitrogen of 28 mg. per cent. The specific gravity of the fluid was 1.020 and upon standing the fluid divided into two layers, the more creamy in character rising to the upper level.

The evidence seemed quite complete that we were dealing with a constant secretion of chyle from a tear in the lymphatic duct—a tear probably resulting from severe coughing. Aspiration of air and fluid to allow expansion of the lung with obliteration of the source of chyle leakage was undertaken. Some mild discomfort occurred with the induction of increased negative pressure and the shifting of the heart toward the right thorax but eventually our purpose was accomplished. The lung expanded and adhered to the right thoracic wall, apparently obliterating the tear in the duct. During this interval there were recurrent attacks of fibrillation but the dyspnea gradually lessened as the lung expanded and the fluid was kept at a minimum. There was considerable weight loss. During a period of three and one-half months approximately 45,000 cc. of fluid was aspirated. This constituted a great drain on the nutritional state of the patient even though she tolerated nourishment rather well during this interval. Multiple transfusions of whole blood and plasma aided in maintaining adequate nutrition. At the time of dismissal the patient was in good condition.

Chylothorax is the result of the escape of chyle from the thoracic duct or its radicals. It occurs chiefly on the right side due to the fact that the lymphatic duct ascends into the thorax through the aortic opening of the diaphragm on

the right side of the spine, as far as the fifth thoracic vertebra. At this point it crosses over and ascends on the left side ultimately joining the left subclavian vein at its junction with the internal jugular vein. Chylothorax results from trauma to the duct, or obstruction of the duct or of the great veins. Bruises to the thorax, fractures of the clavicles or ribs, severe coughing, etc., may cause chylothorax. The delay in symptoms following trauma or unusual coughing is due to the fact that the thoracic duct is an extrapleural organ so that the chyle first accumulates in the retropleural space and does not appear in the pleural space until perforation of the pleura occurs from the pressure of the accumulated fluid. Non-traumatic chylothorax usually results from pressure of mediastinum nodes which are enlarged because of metastatic malignancy, tuberculosis, or lymphoblastoma, to produce pressure on the lymphatic duct. In many cases of chylothorax no logical etiological factor can be demonstrated. Such cases are probably traumatic in origin.

The diagnosis of chylothorax is made by examination of the aspirated fluid. Usually the fluid is colored by blood at the first aspiration, particularly in traumatic cases, but it soon assumes the characteristic milky-white color of chyle. Its oily content may be detected when it is dropped on a glass slide. When allowed to stand in a test tube, the creamy layer develops at the top of the tube. Sudan 3 will readily bring out the fatty nature of the fluid. The specific gravity is in excess of 1.012. The cell count is large with lymphocytes predominating. Chemical analysis shows a fat content varying from 0.4 to 4 per cent.

Treatment of chylothorax consists chiefly of aspiration of fluid and the maintenance of a negative pressure to encourage expansion of the lung. This not only relieves the dyspnea but also provides opportunity for adherence of the lung to the pleura with possible obliteration of the source of leakage of chyle. In one instance of persistent chylothorax, apparent cure followed interruption of the phrenic nerve on the affected side;³ the resulting elevation of the diaphragm presumably aided in closing the perforation of the thoracic duct in the lower part of the thorax. Supportive care with particular emphasis on nutrition because of the deprivation of the food elements which are contained in the aspirated chyle is very important. Some beneficial results have been reported from the intravenous injection of the aspirated chyle⁵ but at least one death, presumably anaphylactic in nature, has been reported from this procedure.⁶ Surgical attempts at repair of the thoracic duct have not been successful.¹

Rees-Stealy Clinic, 2001 Fourth Avenue.

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California Cancer Commission Studies*
Chapters XIII and I-A

Cancer of the Tonsil and Pharynx

LEWIS F. MORRISON, M.D., San Francisco

ACUMEN in diagnosis is not a heritage, it is the result of clear thinking and constant attention to details. Each patient who comes to a physician is entitled to the best. Therefore the time and effort spent in preparing these few pages was with the hope that the reader would be stimulated and encouraged to do two things. First, to review mentally the cases of cancer of the tonsil and pharynx he had seen, the ultimate outcome of them and the responsibility for that outcome; second, to encourage physicians to maintain the highest standards of diagnosis for such cases.

CANCER OF TONSIL—SYMPTOMS

Cancer of the tonsil is rare. Unfortunately its early stages are often relatively asymptomatic, and the usual symptoms are only those of a feeling of discomfort, or unilateral tonsillar enlargement, or a sense of local irritation. This lack of subjective symptoms often persists until the tonsil and even the surrounding tissues are replaced by a fungating, ulcerated mass that has gross metastasis as evidenced by enlarged, hard, cervical lymph nodes. Pain is usually a late symptom and its presence depends on the proximity of the lesion to an important nerve trunk.

DIAGNOSIS

All too often the patient with a complaint of tonsillar irritation receives only a cursory examination. As a result it is not realized that there is an asymmetry or that the tissues surrounding a tonsil crypt opening are indurated or that a tonsil tag does not appear normal. The patient is dismissed after a "throat swabbing" and with a prescription for a gargle. A few months later the diagnosis is all too evident because of a large ulcerative mass and metastatic lymph nodes. It is only then realized that cancer was the cause of the asymmetry or irritation. Unfortunately the chance of cure is usually gone by then.

Adequate inspection of the tonsillar area is not difficult and does not require special instruments. A tongue blade, flashlight and finger cot are all that is needed. If there is a hyperactive gag reflex, there should be no hesitancy in applying one of the effective topical anesthetics. One very valuable procedure almost always omitted is palpation. The visual exam-

ination may reveal no asymmetry or apparent change from the normal. *Digital examination* will often reveal differences in tissue density and will give one a rough idea of the extent of invasion of a cancer.

Diagnosis is always by microscopic examination of a biopsy specimen. *The presence in a tonsil of a mass, or an ulcer, or of an area of tissue that feels different than the surrounding tissues demands immediate biopsy.* If the involved area is confined to the tonsil this can be done by tonsillectomy. When this is not feasible, representative portions of the involved area should be removed. In either event all the tissues removed must be submitted for pathological examination. A negative biopsy does not mean "no cancer"; it means "take another biopsy." It is wise when doing tonsillectomies in adults to submit the tonsils to a pathologist for at least gross examination.

TREATMENT

Cancer of the tonsil is seldom, if ever, recognized early enough to permit any assurance that it has not metastasized to its tributary lymph nodes. This being the case, *simple tonsillectomy is never sufficient*, even though the pathological examinations show a wide margin of normal tissue. *Adequate radiation therapy is essential* in even the earliest cancer of the tonsil and must be directed to both the tonsillar area and its tributary lymph nodes. To omit radiation therapy is to deny the patient a chance for a cure of the cancer. Accepted radiological practice for these lesions consists of daily doses of x-ray to the involved areas, to full tolerance of the tissues. In selected cases this should be supplemented by interstitial radium or radon.

Advanced lesions with evident metastasis should never be subjected to operative procedures other than a biopsy for diagnosis. Extensive x-ray therapy is the only method of treatment for such cases. The prognosis in such cases is bad.

CANCER OF THE PHARYNX

The pharynx conveniently divides itself into three divisions, the nasopharynx, oropharynx, and hypopharynx. The oropharynx is the only one of these easily examined by direct vision, and is singularly free of cancer.

The nasopharynx and hypopharynx are readily inspected by the indirect method wherein one uses a head mirror as a source of reflected light and a laryngeal or pharyngeal mirror for reflecting the

* Organized by the Editorial Committee of the California Cancer Commission.

image. Technical details of this examination are readily mastered. Facility in the use of these instruments, in the understanding of mirror images and in differentiation between normal and abnormal findings comes with practice. Only by making this procedure routine in all physical examinations can one become facile at it and acquire a clear mental picture of the variations that constitute "within the limits of normal." In these areas, as elsewhere, palpation can and frequently will reveal important information. The gag reflex is a great nuisance but will readily succumb to local anesthesia.

NASOPHARYNX

Cancer of the nasopharynx is especially insidious and the lesion frequently causes no symptoms. This makes it imperative that every doctor learn to do adequate nasopharyngeal examinations and that he include them in his routine physical examinations. In some cases, pain or discomfort in or about the eye or ear will be an early symptom. Persistent pain along the distribution of the first and second divisions of the fifth cranial nerve necessitates a careful examination of the nasopharynx. All too often the cervical masses of metastasis to the lymph nodes are the only symptom that sends a patient to his doctor. This lesion has a predilection for Chinese in the ratio of 14 to 1.

The metastatic masses frequently are out of all proportion to the initial lesions. The primary lesion is often found only after diligent search of the nasopharynx and numerous biopsies of all suspicious areas. *Nasopharyngeal cancer is the most common, non-apparent primary tumor, responsible for cervical metastasis.* These tumors spread early and rapidly, invading extensively locally, as well as spreading to distant areas. In all cases basal skull films are indicated at the time of diagnosis. Whenever there is unilateral cervical adenopathy, the nasopharynx always should be carefully searched.

Operation is of no value. An adequate course of radiation therapy is the only form of therapy that can be advised. The number of reported five-year cures is so small that one must conclude that therapy is essentially palliative. However, the fact that there are some cures makes it imperative that all cases receive intensive radiation. These tumors are very radiosensitive.

OROPHARYNX

This area is seldom the site of a primary neoplasm. Occasionally one finds a pedunculated papilloma or fibroma, islands of hypertrophied lymphoid tissue or a mucus cyst, but rarely a cancer. A mixed tumor of a minor salivary gland is very rarely found in this area. The oropharynx is frequently invaded directly by cancer arising in the nasopharynx, tonsil, base of tongue, or hypopharynx. Thus almost invariably, a visible tumor of the oropharynx is either benign or a sign of late cancer in an adjacent area.

Tertiary lues may produce a nontender swelling on the posterior pharyngeal wall. If untreated it will

break down and produce a characteristic stellate scar. "Cold abscess" from tuberculosis of the cervical spine or deep lymphatics usually presents on the lateral and posterior walls. Occasionally one finds a residual tumor mass following incomplete resolution of a retropharyngeal abscess. Exploration will show semi-inspissated or caseous material, evacuation of which leads to prompt recovery.

One word of warning! Do not attempt to remove, explore, or biopsy any pharyngeal mass until you are certain it does not pulsate. The pharynx contains large blood vessels that do not always follow textbook illustrations.

HYPOPHARYNX

This area does present an occasional benign tumor, such as a lipoma, fibroma or papilloma. Cysts of the epiglottis, glosso-epiglottic fold, and around the foramen cecum are rare but must be kept in mind. Their treatment is surgical removal.

Cancer of the hypopharynx is not uncommon. The greatest percentage is of epithelial origin and is therefore carcinoma, usually of the squamous cell type. Lymphosarcoma is less frequently encountered.

Any complaint of pain or discomfort in the throat, of dysphagia, or of a burning sensation, especially if these are associated with pain radiating to the ears, demands careful examination of the hypopharynx, before the patient is sent on his way with a diagnosis of neuritis, neuralgia or globus hystericus. The examination should include visualization of the base of the tongue, pyriform sinuses, ary-epiglottic folds and epiglottis. This is usually done with head mirror and laryngeal mirror. Topical anesthesia is a valuable aid to securing adequate visualization. There should be no hesitancy in using a finger to palpate suspected areas. Where doubt exists, one should resort to direct laryngoscopy.

The commonly accepted method of treatment for cancer of the hypopharynx is a full course of radiation therapy. Attempts at surgical removal of cancer in this area have been generally unsuccessful. The operative mortality is high, and there is frequently local recurrence. Early lesions of the epiglottis, especially if confined to the upper half, may be treated surgically.

SUMMARY

Cancer of the pharynx or tonsil is not rare. In the early stages its symptoms are very minimal and frequently are only mild, persistent soreness, a burning sensation, mild dysphagia, slight "stiffness" of the ears, or some similar complaint. Such complaints require careful examination of the entire pharynx, using a head mirror, pharyngeal and laryngeal mirrors and the finger. Any small ulceration, projection or tumor, or area of changed tissue density, should be biopsied. Not infrequently these patients present themselves with an initial complaint of a "neck tumor" due to cervical lymph node metastasis. In any case of unilateral cervical adenopathy careful search of the pharynx for a cancer is a *must*.

In general, malignant lesions of the tonsil and

pharynx have a low five-year survival rate in spite of intensive treatment. This is because the diagnosis is seldom made when the cancer is in its early stages. Good results have been and will be obtained in early cases treated adequately. Good results cannot be expected in this or any other cancer, when therapy is instituted after metastases have appeared. Delay in diagnosis assures a fatal outcome. Neither you nor

your patient are entitled to temporize with a condition that could be cancer. The patient's entire future depends on your making an early, correct diagnosis and seeing to it that proper therapy is started at once.

"Cancer of the Larynx," by Simon Josberg, M.D., Chapter XIV of the California Cancer Commission Studies will appear in this section of the March issue of CALIFORNIA MEDICINE.



The Responsibility of the General Practitioner in Neoplastic Disease

LOUIS J. REGAN, M.D., LL.B., Los Angeles

THERE is no difference in respect to the practitioner's legal duty to a patient with neoplastic disease than in any other case. When the physician undertakes to render professional services to any patient, he assumes certain legal obligations. He must possess the degree of skill and knowledge commonly possessed by other reputable physicians in the community; he must exercise a degree of care, diligence, and judgment equal to that of other practitioners who engage in treating similar cases; and he must keep abreast of progress in the profession, utilizing accepted and standard procedures in diagnosis and in treatment.

The relationship of physician and patient is one of trust and confidence, requiring that the physician act at all times with the utmost good faith toward his patient. This demands for example: that the attending physician, if he doubts his ability to care for a particular case, must so inform the patient; and that, if he feels that a consultant would be of benefit, he must so advise the patient or he must call in a consultant.

The attending physician must act, at all times, in a manner consistent with the standard of practice in the community. The standard of practice is established by what the ordinary, reputable physician would do and what he would refrain from doing in the care of a similar case.

The standard of practice applies to diagnosis as well as to treatment. If the ordinary practitioner would, in the face of a particular case, utilize certain procedures, x-ray, biopsy, etc., the standard is thus established in that type of case. And standard procedures must be followed if the physician is to avoid a legitimate charge of malpractice in the care he renders to a case of that particular kind.

There is being manifested in this locality an increasing interest in, and attention to, the problem of cancer. The lay group are being impressed with the importance of early diagnosis in cancer. If there is apparent delay in diagnosis, or if there is a failure to take advantage of facilities provided, there is likelihood of suit.

For illustration, we have recently had a case wherein a patient, complaining of relatively vague

digestive tract symptoms, was carried along without an x-ray examination and without definitive diagnosis for 15 months. The patient then presented a massive carcinoma of the stomach with metastases. It is not unlikely, in such circumstances, that a court would find against the physician-defendant. In another case, a physician "awaited developments" when a woman of about 45 presented a small mass in the breast. This was unfortunate for the patient and eventually for the physician.

There is no doubt but that the practitioner can immeasurably safeguard himself, by making use of the nearest tumor board, whenever he has a patient who may have neoplastic disease. If there is the slightest doubt in the physician's mind, and he is not able to assure himself that the patient does not have cancer, then he should protect the patient and safeguard himself by taking advantage of the consultative facilities which are available.

The people of California's communities are becoming informed of the existence, purpose, and method of functioning of tumor boards and detection clinics. The fact that many of our physicians are utilizing these facilities in connection with their doubtful or problem cases, is tending to establish their use as being within the standard of practice. It must not be forgotten that the failure to render care consistent with the standard of practice constitutes malpractice, if the patient thereby suffers injury.

In the past the majority of malpractice claims associated with cancer cases have been based upon the allegation of x-ray injury. In the future, it is readily foreseeable, there will be more suits based upon the claim of failure to diagnose, or delay in diagnosing, an existing malignancy. If there has, then, been a failure to make use of facilities, about which even the layman is informed, it must be anticipated that that failure in itself will almost be regarded as prima facie negligence on the part of the attending physician.

It is well known that malpractice claims are not uncommon in California. A physician is unwise indeed who, in this area, does not take positive steps to keep himself out of court.

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EDITORIALS

Alcohol and Man

Considering the prevalence of alcohol in the national diet, the incompleteness of our knowledge concerning both the biochemistry and pharmacology of this substance is worthy of remark. Biochemists in particular have fought shy of work on alcohol, while much of the research into the effects of the drug on the nervous system has been more emotional than objective. As a matter of fact it has been apparent to some of those working with alcohol that their colleagues believe the field of alcohol research to be in some vague way immoral. Moreover, the medical literature leaves no doubt that the publication of findings regarding the effect of alcohol on the human nervous system not in consonance with the beliefs of those long established in the field calls forth a storm of criticism of an acid type, but little objective evidence by the critics in refutation.

In spite of this situation, our knowledge of the metabolism of alcohol, and of its effect on the nervous system, has been considerably enriched in the past fifteen years. Considering the first of these subjects, it has now been shown beyond any doubt that at least the primary step in the oxidation of alcohol takes place in the liver, although brain and possibly some other tissues may participate to a very limited degree. Thus liver tissue *in vitro* and the perfused liver both are capable of oxidizing alcohol, the final product being acetic acid. Presumably in the intact animal this is further burned to carbon dioxide and water, although the possibility that there are other pathways of metabolism which can result in storage of energy derived from alcohol is by no means a remote one. Actually, there are several things which tie in the metabolism of alcohol with that of carbohydrate. Thus it has been shown

that a prolonged fast will considerably reduce the rate of alcohol metabolism, but that the administration of a single dose of glucose promptly returns the rate to normal. Thus it would seem that the simultaneous oxidation of carbohydrate enhances the burning of alcohol. Along the same lines, administration of insulin will increase the burning of alcohol about 50 per cent. It would be remarkable should insulin, with its specific function in carbohydrate metabolism, be able also to influence directly the metabolism of alcohol; more likely seems the possibility that the effect of insulin on carbohydrate metabolism secondarily influences the rate of burning of alcohol. A link between the metabolism of these two substances has been found *in vitro*. Thus it has been shown that there is a coupled oxidation-reduction reaction involving alcohol and pyruvate, which is a known link in the metabolism of carbohydrate. In this reaction the oxidation of alcohol to acetaldehyde is accomplished while pyruvate is reduced to lactate. That this reaction takes place *in vivo*, and may be important in the metabolism of alcohol, is indicated by the fact that in the intact animal the rate of alcohol combustion is accelerated by administration of pyruvate. Further work in this direction may solve the problem as to whether the energy derived from alcohol may be stored or utilized for any other purpose than the production of heat.

One can no longer provoke an argument as to whether alcohol is a stimulant or a depressant; all the data at hand indicate that from the outset the effect of alcohol on the nervous system is that of depression. The apparent stimulation seen in social drinking is customarily explained as being due to

removal of inhibitions, a commodity with which civilized man seems to be richly endowed. Sufficiently delicate tests of neuromuscular coordination, which is early affected by alcohol, show at no time a facilitation of performance, while even quite low concentrations of alcohol in the brain result in decreased skill. It has been found in man, however, that rather than a gradual deterioration in performance as alcohol concentration rises, there is relatively little effect until a level is reached, characteristic of the individual, at which a rapid drop in skill occurs. This "critical level" of brain and (as a reflection thereof) blood alcohol is peculiarly resistant to change in a given individual, but varies widely from one individual to another, a fact which rather decreases the usefulness of the determination of blood alcohol concentration in the legal diagnosis of drunkenness. In dogs the level may be raised considerably by habituation to alcohol over an extended period, and it seems probable that this takes place in man as well, although controlled experiments of this nature are not practicable in human subjects. It is also probable, although again no direct evidence for this exists, that a decrease in tolerance

may take place with age, after prolonged alcoholic excess, in organic disease of the nervous system as after head trauma, and so on.

The "critical level" varies but little with the test of nervous function used. Thus quite similar levels for a given individual were found with a variety of devices designed to assess neuromuscular coordination, while at the same blood alcohol level ataxia, as evidenced by inability to balance on one foot with closed eyes, became apparent, and the subjects tended to fall asleep if undisturbed. Nausea and vomiting, if it occurred during the experiment, took place at this same level. Thus we have objective evidence that the traditional statement that "it was the last drink that did it" is based on valid observations.

Much work remains to be done before our knowledge of alcohol approaches that of a great many substances with which man has immeasurably less contact. It is to be hoped that this work will not be impeded by reluctance of workers to enter a field in which prejudice and moral issues have played so great a part in the past.



Not By the Back Door

The Council of the California Medical Association served emphatic notice at the year-end that rebating practices must be stopped. The Council went one step further in giving the story to the press, so that the public, as well as Association members, might know that it meant business.

This step may be considered an outgrowth of the Council's continuing study of the individual physician-patient relationship. Here is one place where the individual physician and the profession as a whole may improve the public relations of medicine by deleting a snide practice which can have no ultimate effect other than to increase the cost of medical care to the public.

With the tremendous increase of both the general and the medical population of California in the past few years it is not surprising that some injudicious practices have come into the state. Policies which may be condoned elsewhere may be put into effect here by unthinking practitioners. The Council's statement is intended to serve notice that the ground rules in California are different.

Complaints of rebating have recently centered on prescriptions for eyeglasses. The story is that the doctor refers his patient to a specified optical company, which in turn rebates to the doctor 40 per cent—possibly more—of the charge to the patient.

This is an old story; it has been heard for years, not only here but elsewhere. And it has grown to be an accepted situation in some places for a reason that is difficult to understand. To get behind the facts, a look at the national picture of spectacle prescriptions may help.

About a year ago the Department of Justice issued indictments against several manufacturing companies, their officers and a large number of physicians, charging that these physicians were accepting rebates on the eyeglasses made up by these companies or their agents on the prescriptions of the doctors. When the attention of organized medicine was brought to this situation, the explanation was given that the doctors could not help themselves, that the system was so well entrenched it could not be rooted out. And the reason for the firm entrenchment was that the optometrists, who reportedly prescribe and furnish some 85 per cent of the eyeglasses sold in this country, must be protected by a margin of profit large enough to permit them to carry on their practices. If the spectacles sold to the patient of a physician were sold at half the price the optometrist charged, the optometrist would be placed at a commercial disadvantage.

If we follow this story to its inevitable conclusion it is apparent that the physicians who accept rebates

from the optical companies are lending their weight to support optometry. If the doctors insisted that the rebate be taken off the price of the glasses before they were delivered to the patient, the cost of medical care to the public would be correspondingly reduced. Of course, a really conscientious doctor could take the rebate and apply it as a credit on his own statement to the patient for the examination and refraction.

Although complaints at present are principally against rebates in the eyeglasses field, other practices just as insidious are appearing in some places. Consider the x-ray or pathological laboratory that returns a part of its charges to the referring physician. Or the artificial limb manufacturer whose price to his customer includes a share for the doctor. Any way you look at it, the participating producers and doctors are trafficking in human misery and bringing ill repute to the entire system of medical care. Between them they are raising prices to a public which has no recourse other than the protection offered by the Department of Justice and a few civic organizations which make it their business to detect and stop such injustices.

Fortunately, the percentage of doctors who engage in such nefarious practices is small. But, like the rotten apple, they contaminate the entire profession, in the public if not the ethical eye. To clean out a barrel of rotten apples, all must be carefully examined, the bad ones thrown out and the good ones retained. If the medical profession needs such a culling, it is high time to undertake it. The county medical societies, which are authorized to institute disciplinary proceedings against their erring members, have been urged by the CMA Council to take action where it is warranted. The profession has been notified that such practices must stop. The public has been told that the association means business.

The Council's statement repeats a truism which every doctor knows but which some have apparently forgotten, namely, "an ethical doctor bills his patients directly for his services and cannot receive other recompense under any guise whatever." The doctor who takes rebates, under any guise or dodge, is violating the ethics of the profession and must be called to account. Let him earn his livelihood through the honest practice of his profession and not by the back door route.



CLINICAL CONFERENCE

FROM THE STANFORD UNIVERSITY SCHOOL OF MEDICINE POSTGRADUATE
REVIEW COURSE, SEPTEMBER 8, 1947

CASE PRESENTATION, W. G. SNOW, M.D.*: The patient, a 25-year-old white male clerk, was perfectly well and an active participant in sports until a year ago. At that time he began to have a dull ache in the lower back which awakened him early in the morning and disappeared with activity during the day. Soon he became conscious of discomfort in the back when riding busses or streetcars.

About six months ago he began to have pain also in the chest which has gradually increased in severity and is aggravated by sneezing or coughing. Stiffness has developed in the lower back, and now attempts to flex the back are painful. He has noticed gradually increasing fatigue for two months. Sleep is disturbed at night, the patient being awakened by chest pains when he turns from side to side. He is unable to walk as briskly as before and any jar gives rise to pain in the back. There are no gastro-intestinal symptoms or symptoms of other system disturbances.

Physical examination shows a fairly well nourished young man, who steps cautiously and has a stiff gait. He holds the back rigid. The thoracic cage shows diminished expansion, the normal lordotic lumbar curve is obliterated, the erector spinal muscles are very spastic, and flexion of the trunk is largely accomplished at the hips without participation by the lower back. There is tenderness over the lumbar spines and sacro-iliac joints. Examination of the cardiovascular and respiratory systems discloses no abnormality. The abdomen shows no disease.

Laboratory studies contribute only an elevation of leukocytes to 10,000 with 77 per cent neutrophils, of which 68 are lobulated and nine are band forms. The sedimentation rate is elevated to 27 mm. in one hour by the Wintrobe method.

ROLAND DAVISON, M.D.†: The story and findings are strongly suggestive of early ankylosing spondylarthritis, which is sometimes called rheumatoid spondylitis and in the older literature is known as Marie-Strumpell disease, after the two great clinicians who wrote about it the latter part of the 19th century. Spondylitis, spondylarthritis ankylopoietica, spondylitis ossificans ligamentosa, spondylitis rhizomaliqum and Bechterew's disease are other names for the same disease.

I make a presumptive diagnosis in this patient because of the patient's age and sex as much as by the history and physical findings, for spondylarthritis attacks particularly young males. The late Gilbert

Scott for that reason preferred to call the disease adolescent spondylitis. Buckley in 1931 reported a series of these cases, in which most of the patients were between the ages of 20 and 40, and other authors confirm this incidence. Ninety per cent of the reported cases are observed in males whether they are seen in England, in Holland or in Boston. The only exception is the series reported by Oppenheimer from Beirut, Syria, in which 24 per cent were females. The symptoms are quite typical, although some patients have little back pain and present bizarre clinical syndromes. One patient recently complained only of a painful ankle, and only when tenderness was found over one sacro-iliac point and stiffness in the lower back did the real cause of the symptoms appear. The chest pain which becomes agonizing with coughing or sneezing is particularly significant.

Early diagnosis is important if we are to prevent the end results of this disease with which I am sure you are all familiar—a dejected individual, emaciated, unable to turn his head, which protrudes forward, the chest sunken and immobile, the back arched in great kyphosis, the slow walk which is little more than shuffling. The disease may be rapidly progressive, leading to ankylosis of the entire spine in the course of months, or, more commonly, there may be slow progression over a period of ten to fifteen years. Periods of quiescence with only mild symptoms are not uncommon. As the disease progresses, the back becomes increasingly stiff, pains and discomfort become more severe, kyphosis develops, the thorax becomes fixed, reducing the patient's vital capacity. Anorexia ensues. Muscle atrophy, anemia, and great mental depression are observed.

In contradistinction to ordinary rheumatoid arthritis, the small joints are not involved, though frequently the shoulders and hip joints take part in the process.

In the more acute cases there is low grade fever, and most show elevated erythrocyte sedimentation rates, though rarely is the sedimentation as high as that we observe in well developed atrophic arthritis.

Perhaps we should find out whether this young man has evidence of spondylarthritis before we go on. What do the roentgenograms show?

DR. SNOW: The roentgenograms show spotty decalcification, haziness and some sclerosis of the sacro-iliac joints; the apophyseal articulations in the lumbar spine have indistinct outlines; the joint space is clouded and narrowed.

DR. DAVISON: That clinches the diagnosis: those

* Assistant in Medicine, Stanford University School of Medicine.

† Assistant Clinical Professor of Medicine, Stanford University School of Medicine.

findings are typical of early spondylarthritis of the ankylosing type.

While we know nothing concerning the etiology of the disease, we do know the essential lesion is a synovitis of the sacro-iliac, apophyseal and costovertebral articulations. These are all true joints lined with synovia, and, of course, the apophyseals are the only true joints of the spine.

Most writers on this subject believe the sacro-iliac joints are the first involved but multiple joints are affected simultaneously. There is no certain progression from sacro-iliacs to lumbar, then thoracic and finally the cervicals. Isolated segments of the spine are often actively diseased at the same time. For example, a few apophyseal joints in the lumbar spine may be affected along with some in the thoracic or cervical regions.

In the early stages synovitis occurs with exudation into the joint, the articular cartilage is invaded by round cells and becomes roughened. As the disease progresses the articular cartilage disappears and is replaced by connective tissue; the joint ankyloses. Atrophy of the bodies of the vertebrae, and calcification of the lateral and longitudinal ligaments occurs late in the disease. The process goes on to complete rigidity of the entire spine.

The roentgen findings demonstrate what has gone on pathologically, and we must lean on the roentgenologist for our diagnosis. Any young adult or adolescent who complains of backache which persists should have the advantage the roentgen ray offers in the diagnosis of spondylarthritis. In making the roentgenograms, positioning is very important. The anteroposterior exposure is a poor one for demonstrating the apophyseal joints. Different positions must be used, depending on the region we wish to depict.

In the cervical region the facets stand at right angles to the median plane of the body. Therefore, the lateral projection demonstrates these joints best in that region. In the thoracic spine the facets are rotated forward to an angle of 70 degrees with the median plane. To show the left dorsal facets, the patient is posed with his left side against the film and the body rotated forward so the right breast is raised to an angle of 70 degrees. With a little more rotation the right facets are delineated. The apophyseal joints of the lumbar spine are usually at an angle of 45 degrees with the median plane and the semilateral position is used for either side. The sacro-iliac joints may demonstrate changes when the film is made in the anteroposterior position; the 30 degree cephalad position gives better results.

Spondylarthritis produces roentgen changes in the sacro-iliac joints which first show irregular decalcification and trabeculation in the bones adjacent to the joint, haziness and what appears to be widening of the joint. As the disease progresses, coincident with cartilage destruction, sclerosis of the subchondral bone, and narrowing of the joint space is seen; finally there is complete obliteration of the joint by ankylosis. The findings in the apophyseal joints are

similar: first, diffuse rarefaction, indistinct hazy outlines, narrowing, and finally obliteration. Atrophy of the vertebrae bodies occurs late. Calcification of ligaments is seen only in advanced disease and may be absent in a fully rigid spine.

The treatment of these patients has changed materially in the past few years. Not long ago, these patients were told we could do nothing. Loring Swaim and others helped by putting the patient to bed in body casts, by packs and fomentations, and braces to prevent extreme kyphosis when the patients became ambulant. For the anemia which invariably develops in the advanced cases, transfusion was and is the treatment of choice. Liver extract and iron are of little if any value. Gold salts are utterly useless in this disease; the salicylates are of value only for relief of pain.

Roentgenotherapy is the treatment which appears to do most good. Its value is greatest in the early case, but even advanced cases having much ankylosis obtain relief of pain and spasm from it. Roentgenotherapy also appears to have the effect of allaying the inflammation underlying the symptoms and of arresting the progress of the disease. Well controlled series show subjective improvement in 90 to 100 per cent of the cases, and 80 per cent show objective improvement.

The technic of treatment, the size of the portals and dosage, varies considerably from clinic to clinic. In England, the wide field technic proposed by Scott in 1935 using a special tube prevails. Freyberg in 1940 recommended single treatment of 200 r. In 1946 he advised 150 r. In this clinic, we advise roentgenotherapy as soon as the diagnosis is made. Regardless of the extent of the disease, the entire spine is treated. Six treatments are given at daily intervals, alternating area 1, which includes the cervical and thoracic spine, and area 2 which comprises the lumbar region and the sacro-iliac joints. At each treatment 150 r. is given. The factors are 200 K.V., target skin distance 70 cm., 1 mm. cu. filter, giving one-half value layer. The total dosage for the course 900 r. measured in air. Pyribenzamine 50 mg. three times daily is given to offset the radiation sickness which most patients otherwise encounter.

At the end of one month, a second course of roentgenotherapy is given and in three months a third course. Subsequent treatment is given as indicated; the patients report every three months for observation. Just as soon as pain and spasm are alleviated, corrective exercises are given in the physical therapy department. These exercises are aimed toward mobilization of thorax and muscles and correction of posture.

The outlook of both the doctor and patient has been brightened by the use of roentgenotherapy in the treatment of spondylarthritis — indeed has changed from despair to hope. Complete relief of symptoms is the rule soon after completion of the second course of treatment.

CALIFORNIA MEDICAL ASSOCIATION

JOHN W. CLINE, M.D.....	President	EDWIN L. BRUCK, M.D.....	Council Chairman
E. VINCENT ASKEY, M.D.....	President-Elect	L. HENRY GARLAND, M.D.....	Secretary-Treasurer
LEWIS A. ALESEN, M.D.....	Speaker	SIDNEY J. SHIPMAN, M.D.....	Chairman, Executive Committee
DONALD A. CHARNOCK, M.D.....	Vice-Speaker	DWIGHT L. WILBUR, M.D.....	Editor
JOHN HUNTON.....		Executive Secretary	

NOTICES AND REPORTS

C.M.A. POSITION ON REBATING

The following resolution was adopted by the Council of the California Medical Association, December 21, 1947.

"In its continued efforts to protect the public the California Medical Association serves emphatic notice that it is both unjust and a violation of medical ethics for doctors to receive rebates of any portion of fees or costs of medical appliances, drugs, eye-glasses, x-ray or laboratory procedures which have been prescribed or recommended by them. It is equally unethical for physicians to give or to participate in rebates of fees.

"The California Medical Association has received reliable reports that rebating practices still exist among some unethical physicians who constitute a small percentage of the profession.

"This statement is made for the information of all groups and individuals interested in public welfare in our campaign to eliminate this abuse and to enforce the honest practice of medicine.

"The public should be advised that an ethical doctor bills his patients directly for his services and cannot receive other recompense under any guise whatever.

"The Council of the California Medical Association has addressed a letter to each of the forty component county medical societies calling this situation to its attention and requesting that the county societies take appropriate disciplinary action in the instance of any violation of this principle."

Council Meeting Minutes

Tentative Draft: Minutes of the 347th Meeting of the Council of the California Medical Association, San Francisco, December 20-21, 1947.

The meeting was called to order by Vice-Chairman Sidney J. Shipman at 10 a.m., Saturday, December 20, 1947, in the St. Francis Hotel, San Francisco.

1. Roll Call:

Present were President Cline, President-Elect Askey, Speaker Alesen, Vice-Speaker Charnock, Councilors Shipman, Ball, Crane, Henderson, Anderson, Lum, MacDonald, Green, Cherry, MacLean, Bailey and Thompson, Secretary-Treasurer Garland, and Editor Wilbur. Absent, Councilors Bruck (illness), Kneeshaw and Hoffman.

Present by invitation were Doctor Dwight H. Murray, Chairman of the Committee on Public Policy and Legislation; Doctor C. L. Cooley, Secretary of California Physicians' Service; Mr. John Hunton, Executive Secretary; Mr. Ben Read, Executive Secretary of the Public Health League of California; Mr. Howard Hassard, Legal Counsel; Mr. Clem

Whitaker, public relations counsel; Mr. William M. Bowman, Executive Director of California Physicians' Service; Mr. Herbert A. Dady, Advertising Manager of CALIFORNIA MEDICINE; and county executive secretaries Rollen Waterson of Alameda County, Frank H. Kihm of San Francisco County, Kenneth Young of San Diego County and Joe Donovan of Santa Clara County.

A quorum was declared present and acting.

2. Approval of Minutes:

(a) On motion duly made and seconded, the minutes of the 346th Council meeting, held September 20-21, 1947, were approved.

(b) On motion duly made and seconded, the minutes of the 205th Executive Committee meeting, held November 9, 1947, were approved.

3. Membership:

(a) A report of membership as of December 19, 1947, was received, showing 8,916 members. Attention was called to the fact that at the approach of

the year-end, there were only 25 members who had resigned during 1947 and only 12 members who had not paid their 1947 dues. The total of these two amounts to *less than four-tenths of one per cent* of the Association's membership.

(b) On motion duly made and seconded, 90 members whose 1947 dues had been paid since September 20, 1947, were reinstated to active membership.

(c) On motion duly made and seconded, Doctor Lorruli A. Rethwilm of San Francisco was reinstated as a 1946 member on payment of her dues for that year.

(d) On nomination by their respective county societies, five members were elected to associate membership. These were: Philip K. Condit, Alameda County; Warren F. Fox, Riverside County; Harold Marks, San Mateo County; Joseph A. Sampson, Santa Clara County; and James J. Hamilton, Yuba-Sutter-Colusa County.

(e) On nomination by their respective county societies, 16 members were elected to retired membership. These were: William Earl Mitchell, Leslie T. Peery, Clarence Alfred Wills, Alameda County; Charles W. Decker, John Dunlop, Harry J. Mayer, Herbert V. Mellinger, Eleanor Seymour, A. A. Sornsen, Carl S. J. Tillmanns, Los Angeles County; Herbert A. Johnston, Orange County; Samuel A. Durr, San Diego County; Herbert W. Allen, Lorruli Rethwilm, San Francisco County; A. L. Van Meter, San Joaquin County, and Oscar Coodley, Los Angeles County.

(f) On nomination by their respective county societies or on direct application, as provided by the Constitution, 15 members were elected to Life Membership. There was discussion of the apparent advantage being taken of existing constitutional provisions by some physicians who might reasonably be expected to maintain regular active membership in the Association. Those elected were: C. L. Abbott, E. N. Ewer, Ergo Majors, George G. Reinle, Alameda County; Guy Manson, Fresno County; John V. Barrow, Edgerton L. Crispin, W. H. Kiger, George H. Kress, Tilman H. McLaughlin, Ross Moore, Frank W. Otto, Walter Wessels, E. H. Wiley, and Harold R. Witherbee, Los Angeles County.

4. Financial:

(a) A report of bank balances as of December 19, 1947, was received.

(b) A balance sheet of the C.M.A. and the Trustees of the C.M.A., combined, as of November 30, 1947, was received.

(c) A report of income and expenditure for November and the five months ended November 30, 1947, was received.

At this point the Council recessed to permit a meeting of the Trustees of the California Medical Association. Upon completion of the meeting of the Trustees the Council reconvened.

5. Reports of Committees:

(a) Committee on Scientific Work—Doctor L. H. Garland, chairman, reported on arrangements being

made for the 1948 Annual Session. There will be six guest speakers, one invited by the President, one each by the Sections on General Medicine, General Surgery, Anesthesiology and Dermatology and Syphilology together with Doctor George F. Lull, Secretary and General Manager of the A.M.A. Doctor Garland asked the Council to approve the inclusion in the program of several California physicians who are not members of the Association, subject to final approval by the Committee on Scientific Work. Most of these men are in full-time research or junior teaching positions. This approval was given.

(b) Committee on Medical Economics—Doctor H. Gordon MacLean, chairman, reported on meetings held by the Committee in compliance with Council and House of Delegates instructions, in studying prepayment medical care plans and individual physician-patient relationships. Studies of the latter are now being made from the records of the Bureaus of Medical Economics in Alameda, San Francisco and Santa Clara Counties and by committees on medical defense, fee complaints and professional conduct of the Los Angeles County Medical Association. The committee has interviewed directors of various prepayment plans and has planned additional interviews at the Cleveland A.M.A. meeting in January, 1948. A preliminary report will be made in the Pre-Convention Bulletin and a final report at the 1948 Annual Session. Doctor MacLean read a covering letter and questionnaire which the committee has tentatively proposed sending to medical societies, hospital directors and general practice groups, to ascertain the average reception by these groups of various forms of voluntary sickness care insurance and related items. On motion duly made and seconded, the Council approved this mailing.

(c) Committee on Rural Medical Service—Doctor Cline reported on a Rural Health Conference held in Sacramento on December 6 under the sponsorship of the Committee and participated in by the major farm groups, nursing association, California Congress of Parents and Teachers, State Department of Public Health, county health officers and others. He stated there was great interest shown by all present in the problems of rural medical care and satisfaction that the C.M.A. was taking leadership in this matter. The farm groups were particularly strong in their rejection of compulsory health insurance as a solution of medical care problems.

Doctor Cline brought up for discussion a reimbursement type of health and accident policy underwritten by Lloyd's of London which he had mentioned in his address at this conference and which had created considerable interest. The Committee on Medical Economics undertook to investigate this type of policy as a part of its studies.

(d) Committee on Postgraduate Activities—The secretary reported for Dr. J. C. Ruddock, chairman, that the committee, in line with previous Council authorization, had selected Doctor Carroll B. Andrews of Sonoma as director of the committee's projected program, at a salary of \$500 part-time. The committee proposes that Doctor Andrews start

work January 1, 1948, and spend some weeks at the outset in studying postgraduate programs in several eastern states as well as actual needs in our own state counties. Thereafter he would attempt to correlate the postgraduate programs now offered by medical schools and others and to establish a uniform program for the C.M.A. On motion duly made and seconded, it was voted to appropriate a maximum of \$5,000 for traveling and other expenses of this program, in addition to the appropriation previously authorized for salaries, and to approve the contract for employment drawn up by legal counsel.

(e) *Advisory Planning Committee*—Mr. Hunton, chairman, reported on two meetings of the committee since the last Council meeting. One of these was with the standing Committee on Medical Economics, which has requested the Advisory Planning Committee to cooperate with it. The Advisory Planning Committee had decided, pending Council approval, that its meetings should be held at approximately the same intervals as Council meetings, unless there is special business to require more frequent meetings; the Committee believes such meetings would constitute substantial compliance with the original House of Delegates resolution which provided for monthly meetings. The Council approved this suggestion. The Committee also requested that Mr. Vance V. Venables, Executive Secretary of the Kern County Medical Society, be appointed to the Committee and the Council so voted.

6. *Proposed Resolution on Private Enterprise:*

Doctor Askey introduced a Mr. Stone, who addressed the Council on behalf of the Committee for Economic Freedom of Van Nuys; Mr. Stone requested the Council to consider joining the program of this organization in fostering a request to the Congress to inaugurate a constitutional amendment to provide that the Federal Government should not enter into any business in competition with its citizens. After discussion, it was regularly moved, seconded and voted that this proposal be given to public relations counsel who was instructed to aid this movement if possible, and to Doctor Dwight H. Murray for any assistance he might give it in the A.M.A.

7. *California Physicians' Service:*

Doctor C. L. Cooley, C.P.S. Secretary, reported that C.P.S. is today in the best condition in its history, has reduced its stabilization fund deficit to \$175,070 and has tightened up on its underwriting and administrative procedures in order to make a more economical operation. Participation of 75 per cent of the members of new groups is being required, instead of the former 50 per cent; waiting periods are required for some common procedures, and other requirements have been instituted to eliminate abuses and still give the members a proper and adequate service.

Mr. W. L. Bowman, Executive Director of C.P.S., reviewed the income statement for eight months ended November 30, 1947, pointed out that adminis-

trative expenses are now running 16 per cent and showed that the average payment to physicians, including both the commercial and veterans' programs, is now \$2.15 a unit. He stated that the Trustees hope to increase the commercial program unit payment within the next few months and to bring it to a full \$2.50 before the close of 1948. Some of the more favorable experience he ascribed to a "seasoning" of membership groups, pointing to a greater use of service in the early months of membership which tapers off as a member continues for a longer period of time. On motion duly made and seconded, it was voted to accept this report with thanks.

On motion duly made and seconded, it was voted to secure for each Councilor a copy of a report recently released by the U. S. Public Health Service on the matter of medical cost prepayment and Blue Cross plans.

On motion duly made and seconded, it was voted to continue as an active committee the C.P.S. fee schedule committee appointed last year by the Council under the chairmanship of Doctor William L. Bender of San Francisco and to renew its thanks to this committee for the work it has already performed.

8. *Executive Session:*

At this point it was moved, seconded and unanimously voted to go into executive session.

Doctor Cline brought up some questions relative to the recent matter in the Los Angeles County Medical Association area and quoted from some campaign literature which included various statements at variance with known facts. He asked if the Council should take official cognizance of such material. There was considerable discussion, which led into the question of rebates on eye-glasses, drugs, appliances and other materials. On motion duly made and seconded, it was voted to refer this matter to a special committee which would report back on Sunday, December 21.

Sunday, December 21:

The special committee reported it recommended the Council should reaffirm its earlier stand against rebates in any form and offered a statement to that effect. It had also prepared a series of nine procedural steps to make this statement effective. On motions duly made and seconded, the Council voted unanimously to adopt this statement and the nine procedural steps to implement it. Copies of both items are to be made a part of these minutes.

Statement adopted by the Council of the C.M.A., December 21, 1947:

"In its continued efforts to protect the public the California Medical Association serves emphatic notice that it is both unjust and a violation of medical ethics for doctors to receive rebates of any portion of fees or cost of medical appliances, drugs, eye-glasses, x-ray or laboratory procedures which have been prescribed or recommended by them. It is equally unethical for physicians to give or to participate in rebates of fees.

"The California Medical Association has received reliable reports that rebating practices still exist among some unethical physicians who constitute a small percentage of the profession.

"This statement is made for the information of all groups and individuals interested in public welfare in our campaign to eliminate this abuse and to enforce the honest practice of medicine.

"The public should be advised that an ethical doctor bills his patients directly for his services and cannot receive other recompense under any guise whatever.

"The Council of the California Medical Association has addressed a letter to each of the forty component county medical societies calling this situation to its attention and requesting that the county societies take appropriate disciplinary action in the instance of any violation of this principle."

Steps to implement statement adopted December 21, 1947:

1. Write letter to County Societies;
2. Publish Council action in *California Medicine* and *Public Relation News*;
3. Issue appropriate press release;
4. Send copies to the Better Business Bureaus of the State;
5. Request Councillors to inform Societies in their districts;
6. Forward copies to the A.M.A.;
7. Ask A.M.A. House of Delegates to take similar action;
8. Refer resolution to C.M.A. House of Delegates as recommendation of Council.
9. Transmit informative letter to each member of C.M.A.

9. Rise From Executive Session:

At this point it was moved, seconded and voted that the Council rise from executive session.

10. Public Policy and Legislation:

Mr. Ben Read reviewed the results of special elections held in two Senate and five Assembly districts and pointed out that in practically all cases the winning candidate was regarded as friendly to the policies of medicine.

Doctor Dwight H. Murray, chairman of Public Policy and Legislation, commented on the nursing situation and suggested that a committee be appointed to meet with similar committees of the State Board of Medical Examiners, California State Nurses' Association and Association of California Hospitals to try to work out legislation to clarify misunderstandings in the nursing field. It was regularly moved, seconded and voted to appoint such a committee.

Doctor Murray also suggested that several sections (249-250-251) of the Crippled Children's Act be investigated as to their effect on the practice of medicine. He also stated that several sections of the optometry act should be looked into for possible clarification.

In regard to the coroner system of the state, a complete revamping of which was ordered by the 1947 House of Delegates, Doctor Murray pointed to the difficulties of such a procedure and asked that the Council include a report on this in its annual report.

11. Public Relations:

Mr. Clem Whitaker, public relations counsel reported that only ten counties remained for Voluntary Health Insurance weeks and proposed that the campaign in Los Angeles County be temporarily deferred because of the difficulties of size which this great county offered and that the others be completed in the early months of 1948. He suggested that this phase of the public relations campaign be rapidly tapered off and that the fee of his organization be reduced in 1948 from \$1,500 to \$1,000 in view of the decreased demands for attention.

In regard to "California Caravan," the C.M.A. radio program, Mr. Whitaker stated that the California Congress of Parents and Teachers had awarded its Achievement Award to this program for its excellence as an educational medium. He also stated that the Los Angeles County School Board has nominated this program for the Peabody Award for educational programs, a national award comparable to the Pulitzer Prizes offered in journalism and related fields.

12. New Mexico Physicians' Service:

Mr. Hunton reported that the latest financial statement of New Mexico Physicians' Service showed that for 21 months of operation a net deficit of only \$905 had been incurred. He also reported that NMPS has formed its own hospitalization affiliate, has been forced to discontinue joint operations with the Blue Cross plan in New Mexico and in the first two months of its own plan has attained a membership of more than 6,000, compared with a Blue Cross membership of about 11,000 prior to the termination of joint operations.

13. California Medicine:

Mr. Hunton reported that CALIFORNIA MEDICINE had withdrawn from the Cooperative Medical Advertising Bureau, as authorized by the Council, and was now engaged in selling its advertising space direct. He introduced Mr. Herbert A. Dady, advertising manager, who accompanied Mr. Hunton on a trip east to visit the major advertising agencies. Business prospects for 1948 are good, he reported, with some new business being secured to offset losses coming from other accounts under a postwar retrenchment program. The reception of CALIFORNIA MEDICINE by the advertising agencies was excellent. Advertising of products not accepted by the Council on Pharmacy and Chemistry of the A.M.A. is under control of an advertising committee under the chairmanship of Doctor Hamilton Anderson and including Doctors Matthew Hosmer, C. L. Cooley, Nelson Howard and Walter Beckh.

Mr. Hunton also reported a vacancy on the Editorial Board in the disqualification of Doctor Windsor Cutting, who is no longer an Association member. It was regularly moved, seconded and voted that Doctor Hamilton Anderson be appointed to this position.

14. Recess:

At this point the Council voted to recess until 10 a.m., December 21.

15. Reconvention:

The Council reconvened at 10 a.m., Sunday, December 21, 1947, under the chairmanship of Doctor Edwin L. Bruck.

16. Roll Call:

Present were President Cline, President-Elect Askey, Speaker Alesen, Vice-Speaker Charnock, Councilors Bruck, Shipman, Ball, Crane, Henderson, Anderson, Lum, MacDonald, Green, Cherry, MacLean, Bailey, and Thompson, Secretary-Treasurer Garland and Editor Wilbur.

Present by invitation were Doctor Dwight H. Murray, Doctor Wilton L. Halverson, State Director of Public Health, and Doctors Robertson Ward and Donald Cass, Delegates to the A.M.A.; Messrs. Hunton, Read, Hassard, Waterson, Kihm, Whitaker and Bowman. Absent, Councilors Kneeshaw and Hoffman.

A quorum was declared present and acting.

17. Legal Department:

(a) Mr. Hassard reported that the state Attorney General had issued a new opinion relative to county hospitals, under which he held that the hospitals were authorized to establish reasonable regulations for admission to the professional staff. This overrules a previous opinion.

(b) Mr. Hassard reported on the decisions of a statewide committee on hospitalization of the California State Chamber of Commerce on which Messrs. Hassard, Read and Hunton were members. This committee has recommended that additional hospital beds should be provided by popular subscription or other private means, if available, and that federal or state funds should be used only if other revenue sources fail. This recommendation is now before the Chamber's statewide tax committee prior to presentation to the State Chamber for adoption as a policy.

(c) Mr. Hassard stated that, following requests from medical school deans and members of the State Board of Medical Examiners, a complete revision of the Medical Practice Act was under consideration. Various suggestions have been offered for rewriting this code and a State Senate interim committee, headed by Senator Burns of Fresno, is looking over this section of the state laws along with other sections dealing with all agencies under the Department of Professional and Vocational Standards. On motion duly made and seconded, it was voted to appoint a special committee to meet with other interested parties to help draft a new code section. The chairman appointed D. H. Murray as chairman and Donald Charnock and Dwight Wilbur as members of this committee.

(d) Mr. Hassard also stated that he had been appointed a commissioner and legal counsel for

Associated Medical Care Plans and had attended a meeting in Chicago on December 13. A.M.C.P. was established in 1945 by the A.M.A. as a membership organization for doctor-sponsored medical care prepayment plans and now has 42 member plans. At the Chicago meeting there was discussion of forming a nationwide insurance company to operate through the member plans in all states. This was not favorably voted but it was agreed to apply for federal registration of the Blue Shield insignia which has been used by medically-sponsored pre-payment plans for 20 years and which has come to mean medical sponsorship of such plans.

18. Delegates to American Medical Association:

Doctor Cline reported that two alternates to the A.M.A. from California had been declared ineligible because they had not been Fellows of the A.M.A. for two years preceding their election. On motion duly made and seconded, it was voted to elect Doctor Frank A. MacDonald as alternate to Doctor John W. Green.

On motion duly made and seconded, it was voted to elect Doctor Carl L. Mulfinger as alternate to Doctor Donald Cass.

19. California Representative to County Society Secretaries' Conference:

The Secretary brought up the request of the A.M.A. to name a California representative to the committee arranging the County Society Secretaries' ("Grass Roots") Conference, which will meet in Cleveland on January 4, 1948. On motion duly made and seconded, it was voted to name Doctor Carl L. Mulfinger of Los Angeles to this post.

20. State Department of Public Health:

Doctor Wilton L. Halverson, State Director of Public Health, told the Council that on December 19 the Department had adopted a new set of standards for so-called "schools" for the physically handicapped. These standards are expected to result in improved conditions for the physically handicapped who attend such institutions.

Doctor Halverson also stated that amended qualifications for laboratory technologists had been adopted, as previously reported to the Council.

Relative to the Department's chronic disease program, Doctor Halverson reported that advisory committees of physicians, farmers and others had been established to aid the Department. Regarding chronic diseases, Doctor Halverson stated the Department had no preconceived ideas; the Department is interested in cancer registries and wishes to explore improved methods of medical care.

21. Palo Alto Clinic:

The Chairman reported that the information sought by the Council in relation to the freedom of choice of physicians by Stanford University students had been received from the university. There was no further discussion.

22. *Physicians' Benevolence Fund:*

Doctor Axel E. Anderson read the draft of a letter he proposed to send as Chairman of the C.M.A. Benevolence Committee to the Los Angeles County Physicians' Aid Association to ascertain the policies of the latter organization in regard to permitting needy physicians from other counties to be cared for at the home which the L.A.C.P.A.S. plans to build. The Council voted that such a letter be sent.

23. *Rebates:*

On motion duly made and seconded, it was voted that a special committee of the Council (see Item 8) delineate those practices which are considered unethical in the matter of rebating of fees or charges, such list to be publicized in CALIFORNIA MEDICINE.

24. *Medical Society of the State of California:*

Doctor Cline reported a complaint that the C.M.A. mailing list had been denied for use by the Medical Society of California. The correspondence was reviewed, showing that such a request had not been made. It was ordered that copies of this correspondence be forwarded to the physician who made the complaint. It was regularly moved, seconded and voted that the minutes of the Executive Committee concerning the Medical Society of the State of California be reviewed and brought to the attention of the members of the Council.

25. *C.M.A. Mailing List:*

A request for the use of the C.M.A. mailing list to publicize a new book was discussed and it was agreed that such request constituted a commercial enterprise and therefore was not acceptable. On motion duly made and seconded, it was voted that the mailing list be not available for any commercial enterprise.

26. *Blood Banks:*

The Chairman reviewed the blood bank situation and suggested that a resolution be introduced into the A.M.A. House of Delegates to request a reconsideration of the approval given the American National Red Cross blood bank program in June, 1947. Upon motion duly made and seconded, it was voted that the sense of this resolution be acted upon by the C.M.A. Delegates to the A.M.A. at the January, 1948, meeting. The resolution follows:

WHEREAS, The procurement and distribution of human blood in time of peace is a matter for joint cooperation between the medical profession and the appropriate private or commercial laboratories, and

WHEREAS, Many Medical Associations have already set up and are successfully conducting non-profit Blood Banks, and

WHEREAS, The operation of a national Blood Bank program by one voluntary but quasi-governmental agency may be regarded as a further step toward socialized medicine (under agency rather than direct governmental control) and may be the precedent for programs for the free distribution of

penicillin, streptomycin and other therapeutic or diagnostic agents; now, therefore, be it

Resolved, That this House of Delegates does not regard it as a proper function of the American Red Cross to engage in a Blood Bank Program in the United States in time of peace, and be it further

Resolved, That this resolution rescinds the former "Approval in Principle" granted to the so-called Red Cross Blood Program by this house.

27. *Santa Fe Railroad Physicians:*

A letter from physicians of the Santa Fe Railroad coast lines was read, in which the Council was requested to review the by-laws of a collective bargaining organization by these physicians. After discussion it was regularly moved, seconded and voted that legal counsel prepare a letter to this organization, stating that to the best of the Council's knowledge no penalty would be attached to a physician's membership in such a group so long as the group was not engaged in any professionally unethical activities and that no known section of the Principles of Medical Ethics would prohibit the formation of such a group. It was voted to give this matter further consideration at the next Council meeting, and it was voted to appoint a special committee to investigate the matter meanwhile. This committee was named as E. V. Askey, chairman; Wilbur Bailey and L. A. Aleson.

28. *State Board of Medical Examiners—E. D. Kilbourne, Sr., J. D.:*

A letter was read from Doctor E. D. Kilbourne, Sr., whose name was omitted from the directory of the State Board of Medical Examiners due to a confusion of his name with that of his son, E. D. Kilbourne, Jr., M.D. It was voted to refer this matter to the State Board of Medical Examiners.

29. *Request for Ruling on Ethics:*

A letter was read in which the Council was requested to rule on the ethics of a letter sent to former diabetic patients of a medical group asking donations for research work on diabetes. Inasmuch as any disciplinary proceedings in such a case would have to originate at the county level, it was regularly moved, seconded and voted that the matter be referred to the county medical society for determination.

30. *Request for Council Approval of New Publication:*

A request that the Council appoint a member as chairman of a special committee to prepare a manual for disability rating of cases of joint disorders was considered, said manual to be published on completion. It was regularly moved, seconded and voted that the Council could not authorize a program involving an uncompleted text of this type.

31. *Time and Place of Next Meeting:*

It was agreed that the next Council Meeting be held in Los Angeles on February 28 and 29, 1948.

Adjournment.

In Memoriam

BUTTERFIELD, EDWIN RUTHERFORD. Died in Burbank, November 29, 1947, age 63. Graduate of the University of Illinois College of Medicine, Chicago, 1912. Licensed in California in 1920. Doctor Butterfield was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

COOPER, THOMAS EGNER. Died in Davis, December 26, 1947, age 57, of a heart attack. Graduate of St. Louis University School of Medicine, Missouri, 1914. Licensed in California in 1923. Doctor Cooper was a member of the Yolo County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

MAGAN, PERCY TILSON. Died in San Marino, December 16, 1947, age 80, of a heart attack. Graduate of the University of Tennessee College of Medicine, Memphis, 1914. Licensed in California in 1917. Doctor Magan was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

GRUNDY, GORDON MILTON. Died in Newport Beach, December 16, 1947, age 62. Graduate of McGill University, Faculty of Medicine, Montreal, Quebec, 1913. Licensed in California in 1914. Doctor Grundy was a member of the Orange County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

MOFFITT, EDWIN JAY. Died in Hollywood, December 20, 1947, age 75. Graduate of the Drake University College of Medicine, Des Moines, Iowa, 1896. Licensed in California in 1920. Doctor Moffitt was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

PALMER, CAROLINE BELL. Died in Lagunitas, December 19, 1947, age 81, after three weeks' illness. Graduate of the Cooper Medical College, San Francisco, 1906. Licensed in California in 1907. Doctor Palmer was a retired member of the San Francisco County Medical Society, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

SAMPLE, THOMAS NELSON. Died in Fresno, December 23, 1947, age 70, after a long illness. Graduate of the Cooper Medical College, San Francisco, 1901. Licensed in California in 1901. Doctor Sample was a retired member of the Fresno County Medical Society, and the California Medical Association.

Clarence Gaines Toland—1875-1947

The sudden passing of Dr. Clarence G. Toland on September 2, 1947, created a shock, not only to his colleagues of Los Angeles but to a host of friends throughout California and to many fellows of his profession throughout the Union. Clarence Toland, born in Valley Mills, Texas, on August 1, 1875, came as a lad to California with his physician father, the late M. R. Toland. His preliminary school training was at San Jacinto High School and the University of California, and he received his M.D. degree from the University Medical College in Kansas City (1901). After several years of practice in Pomona, he went to Rochester, working two years in the Mayo Clinic, returning for a brief period to practice in Los Angeles, then back again to Rochester for several years to do additional work in the clinic. Dr. Toland in 1916 returned to Los Angeles to practice in that city for some 30 years, up to the time of his death.

During World War I, at Letterman Hospital in San Francisco, as a Major in the Medical Corps, he acted as Chief of Surgery.

In Los Angeles he was active on the staffs in the Good Samaritan and St. Vincent's hospitals, and in the Medical School of the University of Southern California, where he was professor of clinical surgery. Dr. Toland served as president of the Los Angeles County Medical Association in 1920 and as president of the California Medical Association in 1935. In 1931 he was president of the Western Surgical Association. In these and other organizations Dr. Toland exercised a powerful influence and aided greatly in the advancement of organized and scientific medicine. His gracious manner and wise counsel endeared him to patients, friends and colleagues. His passing leaves a void in the profession that will not be easily filled.



NEWS and NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

President of the Alameda County Medical Association for 1948 is **Dr. William G. Donald** of Berkeley, who was elected to succeed **Dr. Theodore C. Lawson** of Oakland. **Dr. Dorothy M. Allen**, Oakland, was re-elected secretary.

BUTTE-GLENN

Dr. Lloyd R. Hennig, Willows, has been elected president of the Butte-Glenn County Medical Society for 1948, succeeding **Dr. J. G. Hepplewhite** of Chico. **Dr. John R. Huffman**, Chico, was elected vice-president, and **Dr. J. O. Chiapella**, also of Chico, was re-elected secretary-treasurer.

INYO-MONO

Dr. C. L. Scott, of Bishop, has been elected president of the Inyo-Mono County Medical Society for 1948, succeeding **Dr. Walter L. Wilson**. **Dr. Lloyd S. Bambauer**, also of Bishop, was reelected secretary.

KERN

Dr. Emerson Savage, head of the Kern County Tuberculosis hospital, resigned that position last month to become medical director of the tuberculosis branch of the San Diego County Hospital.

KINGS

Dr. Lloyd Christensen, Hanford, has been elected secretary of Kings County Medical Society. He succeeds in that post **Dr. William F. Chamlee**, also of Hanford.

Dr. Joseph Stickler has been appointed Health Officer of Kings County to succeed the late **Dr. E. C. Foster**. **Dr. Paul Murphy** had been serving as acting Health Officer since the death of **Dr. Foster**.

LASSEN-SHASTA-SISKIYOU-TRINITY

Plans for a tuberculosis sanatorium to serve Lassen, Shasta, Siskiyou and Trinity counties have been agreed upon by the four counties, and construction work on the buildings, which are to be located in Shasta County, will be started later this year.

LOS ANGELES

Dr. Norman B. Nelson, associate professor of public health and chairman of the public health division in the University of California at Los Angeles, has been appointed assistant dean of the medical school. He will assist **Dr. Stafford Warren**, dean of the new medical school, in selecting a staff and planning the buildings.

Dr. William H. Leake has been elected president of the Los Angeles County Medical Association for 1948, succeeding **Dr. E. T. Remmen**. **Dr. Carl F. Rusche** has been elected vice-president to succeed **Dr. Leake** in that position, and **Dr. Richard O. Bullis** has succeeded **Dr. Carl L. Mulfinger** as secretary-treasurer and as editor of the association's Bulletin. **Dr. Louis J. Regan** continues as legal counsel for the association.

Recently returned from a tour of duty with the Army Medical Corps, **Dr. J. Cutler Roberts** has opened offices at 11472 Gateway Boulevard, Los Angeles.

At the annual election of officers of the Los Angeles Society of Allergy (a Section of the Los Angeles County Medical Association) the following officers were elected for 1948: **Dr. Willard S. Small**, Pasadena, president; **Dr. Hyman Miller**, vice-president, and **Dr. Frank G. Crandall, Jr.**, secretary-treasurer; **Dr. George Piness**, who was president during 1947, was elected to the Executive Council for 1948.

RIVERSIDE

Officers of Riverside County Medical Association for 1948 are **Dr. Arthur W. Miller**, president; **Dr. Harold M. F. Behneman**, vice-president; **Dr. Cecil Lord**, secretary-treasurer. The retiring president is **Dr. Franklyn D. Hankins**.

SAN FRANCISCO

The Western Society of Electroencephalography held its first scientific meeting at Toland Hall, University of California Hospital in San Francisco, November 8, 1947. A constitution was adopted which offers active membership to doctors of medicine actively engaged in the field of electroencephalography. Investigators in related scientific fields are eligible for associate membership. **Dr. Robert B. Aird**, San Francisco, was elected president; **Dr. Knox H. Finley**, San Francisco, vice-president; and **Dr. Nicholas A. Bercel**, Los Angeles, secretary-treasurer. The membership committee is made up of **Dr. Henry Newman**, San Francisco, chairman; **Dr. John Moriarty**, Los Angeles, vice-chairman, and **Drs. Aird, Finley, and Bercel**. Next meeting will be held in San Francisco, April 10-11, 1948, directly preceding the annual meeting of the California Medical Association. Those wishing to contribute presentations are invited to contact the member of the program committee in their community. Those interested in joining the society can secure application blanks from the secretary-treasurer.

SAN JOAQUIN

Seeking a solution to the problem of the shortage of hospital beds in Stockton, the San Joaquin County Medical Society has joined forces with the Stockton Chamber of Commerce to investigate the matter. The Medical Society passed a resolution directing **Dr. E.**

P. Halley, newly elected president of the organization, to appoint a committee of four to work with the chamber in formulating a solution. This action followed a report by Dr. W. C. Curphey, showing an acute shortage of hospital facilities in the entire county.

SAN MATEO

Officers of the San Mateo County Medical Society for 1948 are: President, Dr. Harry E. Mason of Redwood City; vice-president, Dr. Meade Mohun, San Mateo; secretary-treasurer, Dr. Albert G. Miller, San Mateo.

SANTA BARBARA

Dr. Charles A. Preuss of Santa Barbara has been elected president of the Santa Barbara County Medical Society, succeeding Dr. D. H. McNamara. Other officers named were: Dr. Rodney F. Atsatt, president-elect; Dr. Douglas F. McDowell, secretary-treasurer, and Dr. George H. Coshov of Carpinteria and Albert M. Beakler of Santa Maria, vice-presidents-at-large. Drs. McDowell, Warren R. Austin, and Harry C. Devighne were named delegates to the California Medical Association with Dr. McNamara and Dr. Alfred B. Wilcox as alternates.

SANTA CLARA

Dr. John C. Wilson has been elected president of the Santa Clara County Medical Society for 1948, succeeding Dr. Joseph B. Josephson. Dr. Leslie B. Magoon, formerly secretary was named president-elect, and Dr. Richart Pfaff became secretary. Dr. George W. Waters was elected first vice-president.

TULARE

The tuberculosis death rate in Tulare County last year was higher than for any other county in the state, according to a report by Dr. R. L. Knight, county health officer. Inadequate facilities and personnel have made the county health department one of the poorest in the state, he said. He pointed out

that whereas the State Department of Public Health recommends one public health nurse for every 3,500 people, Tulare County has only one for every 32,000.

Dr. J. J. McNearney, recently released from the Navy Medical Corps, has opened offices in Tulare. Dr. McNearney had practiced in Merced before entering the Navy.

VENTURA

Dr. Frank E. Gallison, of Ojai, has been elected president of the Ventura County Medical Society for 1948. Retiring president is Dr. D. M. Clark of Ventura. Dr. A. A. Morrison of Ventura was reelected secretary.

GENERAL

Dr. Harold M. Hildreth has been appointed Chief of Clinical Psychology for the Veterans Administration by Dr. Paul M. Hawley, VA's Chief Medical Director. Dr. Hildreth has been serving as Chief of Clinical Psychology in VA San Francisco Branch Office.

Among nearly \$750,000 in National Cancer Institute grants recently announced were \$17,820 to Stanford University (J. M. Luck) for studies in liver proteins, \$13,608 to the University of California (Dr. S. C. Brooks) for research on ionic exchanges during growth, differentiation, and development of marine eggs, and \$5,724 to the U. C. College of Pharmacy (John J. Eiler) for a study of the efficiency of aerobic and anaerobic phosphorylation in surviving slices of normal and tumor-bearing tissues.

The 1948 session of the National Conference on Medical Care will be held in Chicago, February 8. In one part of the program, two viewpoints on the subject "The Practice of Medicine by Hospitals, Health Departments and Medical Schools" will be developed through papers to be presented by Dr. Lowell S. Goin of Los Angeles and Mr. Everett W. Jones, general manager of the Modern Hospital, Chicago.



INFORMATION

Suggested Program for Public Relations for the American College of Chest Physicians

[The following is a report submitted to the American College of Chest Physicians by its Committee on Public Relations under the chairmanship of William C. Voorsanger, M.D.]

Questions of public relations for any group are very important. We must differentiate public relations from propaganda and from publicity. Public relations should mean the carrying on of a program which wins support from our own members and from medical and lay people at large. How to achieve this purpose is difficult. As your committee sees it, it should be divided into five headings.

I. Public Relations in Regard to Members of the College and Other Physicians Practicing the Specialty of Chest Diseases.

The work of our governing body and those who actively participate in the programs of the college should be of such a high character that all Fellows and Associates will be justly proud of their organization. Mediocrity will at all times lead to poor public relations. At the present time, means of communication among members of the college is through our journal, *Diseases of the Chest*. This has improved greatly as the years have gone by, and through its constant improvement, it can be a source of instruction and guidance to all in the chest specialty. Our newly created American Medical Association Section on Diseases of the Chest, for which we have struggled so many years, should be always officered by the leading chest specialists of the country and the programs should be of an excellence which would justify the faith of the House of Delegates in creating this section.

II. Public Relations in Regard to the General Practitioner.

Your committee considers the duty of the chest specialist to the general practitioner as the most important in the realm of public relations. There is accumulating evidence that the general practitioner, who is usually the physician first to see a chest condition, either tuberculous or non-tuberculous, is totally ignorant of clinical methods of diagnosis as far as this disease is concerned. He depends almost exclusively upon a report of an x-ray laboratory. Experiences have shown that roentgenologists in their interpretations blunder as often as chest men. Therefore, it becomes mandatory to see that the general practitioners recognize chest pathology early. If there is any doubt, consultation should be sought. If the general practitioner, the roentgenologist and

the chest specialist would only cooperate instead of working independently, many errors of diagnosis could be avoided. Your committee feels that the greatest reason for the creating of a special section on chest diseases is the education of the general practitioner in early diagnosis of chest conditions. Our public relations should be directed towards inviting all general practitioners to attend our meeting of the Section of Chest Diseases at the American Medical Association. We should publicize this fact: We recognize specialists but we particularly want general practitioners. If possible, editorials should be written and okayed by this committee, not only for our own journal, but for the American Medical Association Journal and state journals, stressing the importance of this new Section on Diseases of the Chest, particularly as it pertains to the education of the general practitioner in this specialty.

III. Public Relations in Regard to Medical Teaching Institutions.

Your committee has been told that this properly comes under the committee on medical education. We believe, however, that public relations properly handled could pave the way for a committee which has charge of improving medical education on chest diseases in the teaching institutions. Literature could be sent to the heads of medical departments showing how important it is for the medical student and intern to learn more and more about diseases of the chest, particularly tuberculosis, before he starts practicing on his public.

IV. Public Relations in Regard to the Public.

Your committee feels that this is a very important chapter. As one member of the committee so well commented, the medical fraternity as a whole should be engaged at the present time in combating so-called socialized or state medicine. He states: "In all of these things, I think that the public relations sections of our societies should be on the alert for every opportunity to obtain favorable publicity. The idea of this publicity would be to create a receptive attitude in the public mind for ideas emanating from the profession. So far as we are concerned in the College, we could do our best work through direct contacts with the general practitioner and the public in reference to our own field and by stimulating the larger organizations, such as the American Medical Association, toward the activities which it is their duty to undertake." The public should be fully advised what the American College of Chest Physicians is doing, so that it will realize our object in our

specialty is to continually improve standards and thus better provide for our patients. The public will not oppose us when they know that we are working for something besides the satisfaction of our own selfish aims. We, as a group, know that we are exploring many fields, diagnostically and therapeutically, which will benefit our public more than it will us or our pocketbooks. It is our duty as individuals, and as a group, to let the lay public know what we are doing.

V. Public Relations in Regard to the Press.

Public relations in regard to the press is vital. We must be willing at all times to tell the newspapers of this country the truth. We must try to guide them into making correct statements regarding research "cures." We must see that publications which come into the hands of the press are properly edited as

to truth and language. In other words, we should be at all times cognizant of the power of the press, but we should never forget that as a group we are powerful enough to control that press with regard to the truth of its statements regarding our activities.

Your committee firmly believes that the above five sections if properly carried out would cover a sound program for College public relations. The committee also feels that in order to properly carry it out it might be necessary to have a department in our office called the Department of Public Relations. No individual or group of individuals has the time to successfully carry out this program except in a desultory sort of fashion. However, until the time arrives that the college has the funds to provide a full-time public relations department, your committee can function in the best manner possible consistent with the other duties of each member.



BOOK REVIEWS

BENJAMIN SILLIMAN—PATHFINDER IN AMERICAN SCIENCE. By John F. Fulton and Elizabeth H. Thomson—(Recommended by the Book-of-the-Month Club.) Henry Schuman. Price \$4.00.

Fulton and Thomson bring forth in the biography of Benjamin Silliman the spirit and character of a great American pioneer educator in the field of the physical and natural sciences. Silliman, a graduate of Yale, became its first Professor of Chemistry, and, like the true pioneer, went abroad with pistols, sherry and brandy, and some of Yale's money, to do the promethean task of bringing back the scientific culture of the old world to the young university of the new world. The journals and logs of his travels were extremely popular, highly praised and widely read in his time. Silliman was a beloved member of the faculty, his lectures the object of much discussion, and his practical experiments before his classes impressed the principles of chemistry on many generations of Yale students, all of whom learned to love him.

He was a responsible force in the organization of the Yale Medical School (1813), and established the American Journal of Science (1818). He was an important figure in the organization of many artistic and cultural endeavors in his native ambient. Silliman was in the vanguard of the progressive movement in science and was the moving spirit in the development of the Sheffield Scientific School at Yale, from which, in the past century, have stemmed many outstanding contributions to physiology, biochemistry and nutrition.

The chapter on the early medical schools of America brings forth an interesting account of the problems which beset the medical educator in the beginning of the 19th Century, at which time only 10 per cent of the persons practicing medicine had received a medical degree from a responsible college, and less than 2 per cent obtained their degrees in America.

This biography offers another link in the history of American men of science. The publisher has presented the book in a pleasing and readable format.

HODGKIN'S DISEASE. Jackson and Parker, Oxford University Press, New York. Price \$6.50.

Ever since the time of Thomas Hodgkin, doctors have been trying to bring some order into that group of obscure disorders featured by lymphnode and often splenic enlargement. Under the heading of Hodgkin's Disease and Allied Disorders, Jackson and Parker once more undertake this task. Parker and Jackson divide the group into Hodgkin's Disease, reticulum cell, sarcoma, lymphocytoma and lymphoblastoma, lymphosarcoma, giant-follicle lymphoma, plasmocytoma and endothelioma. It can hardly be said that a final clarification of the subject is achieved, especially since Hodgkin's Disease is further subdivided into Hodgkin's paraganuloma, Hodgkin's granuloma, and Hodgkin's sarcoma, the first two apparently possessing the features of an infection and the latter those of a malignant tumor. At the same time all seem to be successive stages of one process. The authors emphasize the presence of Reed-Sternberg cells as necessary for the diagnosis of all forms of Hodgkin's Disease.

Etiology, pathology, clinical features, and treatment of the various conditions all are discussed; there are excellent photomicrographs of the lesions, bibliographies, and index. It is of interest that no reference is made to the excellent monograph of L. T. Webster which appeared in 1922 on

Lymphosarcoma and Allied Conditions. Not everyone will agree with all the writers' views but at the moment this monograph is probably the best summary of the subject, coming as it does from the pen of men who have wide first-hand experience with this perplexing group of disorders.

HISTORY OF MEDICINE. By Cecilia C. Mettler, edited by Fred A. Mettler. Illustrated. The Blakiston Company, 1947. Price \$8.50.

Mettler's History of Medicine fills the great need for a book giving much on the works of numerous men throughout the history of medicine. It is a readable, comprehensive text on medical history arranged to trace the development of various branches of medicine, thereby making the subject of greater interest to the student and teacher.

This book of Mettler's shows evidence of long, painstaking work and can be compared to only one other work, now out of print, namely, Garrison's History of Medicine. Garrison's book was satisfactory for some 30 years, combining usually a portrait with the description of an individual's contribution in science and medicine. Mettler's work, because of its arrangement, gains much in having chapters such as the Anatomy of the Seventeenth Century, in which for instance on page 66 is an account of Thomas Willis and his contribution to anatomy. However, mention of other of his contributions is scattered through the book, appearing under such headings as Physiology of the 17th Century, Neurology and Psychiatry, Pediatrics, Surgery, Ophthalmology, and finally, on page 1087, under Rhinology. Although it is nice to have Willis, his portrait and his contributions all mentioned in one place in Garrison, yet Mettler's arrangement makes it a more readable text with the material so organized as to meet the needs of the specialist who is interested in a certain field, such as the lymphatics, or bacteriology.

It is curious and disconcerting that in Mettler's book such artists as Christian Koeck, and certain contemporaries of the reviewer who have written articles about men long dead, should have their names as authors in the same heavy bold face type as the names of their illustrious subjects. In fact the first name in heavy type to be encountered in Mettler's text, on page 5, is Georg Sticker (1860-), and not the name J. Aesculapius!

Although indexed as appearing on page 4, Smith's papyrus is not mentioned until page 282 under physical diagnosis. The subtitles of subdivisions of the chapters could be in a more contrasting type. Chinese, Hindu and Japanese medicine are not covered so well as in Garrison's book.

In the Editor's preface is the excuse for not having the illustrative material that would have made this book outstanding. If the illustrations of Garrison had only been added, Mettler's book would be the most valuable and illustrious history of medicine.

Mettler's History of Medicine can be recommended as the best of single volume books available. If one could secure a Garrison, then these two books would give the best on the history of medicine.

THE LOUSE: An Account of the Lice Which Infest Man, Their Medical Importance and Control. By Patrick A. Buxton, Baltimore, The Williams & Wilkins Company, 1946.

The first edition of "The Louse," which was published nearly eight years ago, was a standard book to the medical entomologist. In the revised edition completed in 1945, and

thus including the published work only up to the end of 1944, the extensive advances in knowledge of the louse achieved during the war years are fully recorded. Every one of the chapters dealing with the anatomy, biology, medical importance and control of lice has been enriched by new facts. The sensory physiology and behavior under controlled conditions are fully described. Data on the lethal effect of high temperature on eggs and on the distribution of lice in various seams and regions of clothing are extensive. The entomology of typhus and relapsing fever is presented in clear and concise form. *Rickettsia mooseri* is described as *Rickettsia muricola*. (In the new edition of Bergey's "Manual of Determinative Bacteriology" it is christened *Rickettsia typhi*!)

In the chapter on means of control of lice, the spectacular progress made in that field is reflected. The uses and methods of application of DDT and other insecticides are detailed. Evidence presented in Chapter 6 supports the view that the head louse and body louse are well-defined biological races. An appendix details the rearing and feeding of lice. At the conclusion of the book over 230 references are listed.

Although the revised edition is nearly half again as long as the first edition, the book remains unchanged in size and weight because of deterioration of the quality of the paper and binding.

* * *

140 MILLION PATIENTS. By Carl Malmberg, Public Relations Advisor, Information Specialist for U.S.P.H.S. and Chief Investigator for U. S. Senate Subcommittee on Health and Education. (Pepper.)

Those who acclaim this book include: Allen M. Butler, John P. Peters, Ernst P. Boas, Channing Frothingham, Claude Pepper, Herman Kabat.

There is an old adage that says, "Birds of a feather—." The book itself seems dedicated to three major premises, unstated but developed in detail.

1. That present medical care in the U.S.A. is a failure.
2. That any voluntary approach to the problem would fail.
3. That Compulsory Health Insurance such as the Wagner-Murray-Dingell Bill sought is the only answer.

The first principle of logic, that any argument based on false premises still remains false in toto no matter how cleverly developed, seems to have been missed entirely by the author. The possibility that his major premises are false is nowhere admitted in the book, indeed such a thought apparently never entered his mind. In developing his first major premise he quotes statistics to show that U. S. is ninth in health. Australia, New Zealand, Uruguay, Canada, Iceland, Denmark, Norway, and Netherlands, he says, are better. He does not call attention to the facts that:

1. Australia, New Zealand, Uruguay and Canada are essentially pioneer countries with sturdy, strong stock with concentration of population factors and climate differing greatly from the U.S.A.
2. Iceland, Denmark and Norway are countries essentially with long cold climatic conditions curtailing diseases spread easily in warm countries with poor sewage disposal and sanitary facilities.

That Germany, Russia and England, with many of the factors common to the U.S.A., rank far below the U.S.A. in health even though they have had the advantages (?) of compulsory health insurance laws for years, is a fact that the author seems loath to bring out. Among other things in the steady stream of false interpretation of statistics is that of the findings of the U.S.A. Selective Service. The proper evaluation of these figures as analyzed by Goin, Bortz and many others have been ignored—perhaps because these men explode the myth and place the onus where it should rest.

Interestingly enough then the author goes on to show

that really the greatest cause of illness is poverty and that money is the only common denominator. Then slyly he admits that a change in the economic status of the people would be the direct and proper way to attack the problem and that if the people were on better financial footing the problem would be solved. But he decides that such a method is too great a problem and does not fit in with the plans of those who have other ideas and therefore we should attack the enemy through a side entrance apparently hoping to destroy illness by hampering the efforts of the medical profession and fighting anything except poverty. He quotes Falk, Klem, and Sinai. Again, "Birds of feather—." A pet "peeve" seems to be held against individual practitioners or family doctors. He intimates that group practice is the only efficient way to practice medicine—that your doctor wastes your time, your money, and your health. Is it that he fears the "milk of human kindness" that proverbially has flowed from the family doctor whose patients love him and ask his advice when political schemers attempt to "put over" a Wagner-Murray-Dingell Bill, or a Warren Bill?

Malmberg wails loudly against "A.M.A. tactics" apparently because these "tactics" have so far preserved for Americans some of their freedoms. Is it because these tactics do not "set well" with the bureaucratic domination theme?

The author depreciates all efforts along voluntary lines to answer the problem. He reverberates the old cliché and cry of "too little and too late" apparently ignoring that even when foolish leaders in their "hey day" sought to hide their own shortcomings and lack of vision, the great American people came through with "enough and in time."

He ends his book with the statement that the 140 million people can't be wrong. He draws the deduction therefore that Americans will embrace his schemes and live happily and healthily ever after. Even this premise could be false. An old ditty often quoted, said in part:

"He was right, dead right as he strode along,
But he's just as dead as if he were wrong."

The book, however, is fairly well written—appeals to those people who relish discord and demagogic attacks, and is an expertly drawn propaganda document. Therein lies its danger. It should be read by Doctors of Medicine if only to be able to answer the ridiculous fallacies that readers of the book will otherwise accept.

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PLAGUE. By Arthur N. Foxe. The Hobson Book Press, 1947. Price, \$2.50.

This volume of 122 pages, under the title of "Plague," deals with the life of René Théophile Hyacinthe Laënnec (1782-1826), the "inventor of the stethoscope and father of modern medicine." The old term for tuberculosis, "white plague," was abbreviated to the somewhat misleading term, "plague." In its present form the book represents the second edition of a very limited first issue of six copies which appeared in 1930. Aided by the review of a large mass of literature, poems, letters of the Laënnec correspondence and the carrier correspondence of the well-known author, Dr. Arthur N. Foxe, associate managing editor of the *Journal of Nervous and Mental Diseases*, has developed a very commendable biography of Laënnec. Short and pointed sentences depict his life and the familial relations in Brittany, his love for nature and his relentless studies and work in Paris under the shadow of the "tubercle," and economic difficulties. "Medicine and medicine and medicine—hour upon hour, upon hour." "The wards—flesh without destiny, not knowing in what world it would get its next sustenance. The autopsy—flesh with destiny." These few samples of the style should invite many to read this delightful book. Through his correspondence one is led to appreciate the nervous, restless, modest personality, endowed with generous, tolerant and refined feelings.